NINTH ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

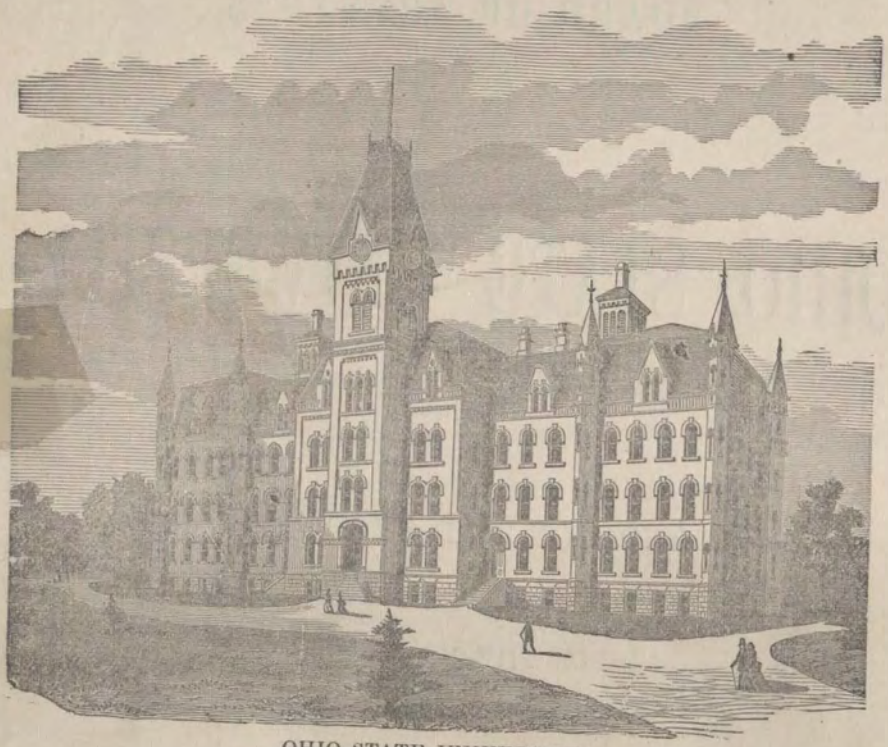
OHIO STATE UNIVERSITY,

TO THE

GOVERNOR OF THE STATE OF OHIO,

FOR THE YEAR 1879.

COLUMBUS:
NEVINS & MYERS, STATE PRINTERS.
1879.



OHIO STATE UNIVERSITY.

BOARD OF TRUSTEES.

HON. J. H. ANDERSON	Columbus, Ohio.
ALSTON ELLIS	Columbus, Ohio.
HON. THOMAS J. GODFREY	Celina, Ohio.
S. H. ELLIS	Springboro, Ohio.
HON. STEPHEN JOHNSTON	Piqua, Ohio.
HON. JAMES B. JAMISON	Cadiz, Ohio.
T. EWING MILLER	Columbus, Ohio.

OFFICERS OF THE BOARD:

STEPHEN JOHNSTON	*President.*
ALBERT ALLEN	*Secretary.*
HENRY S. BABBITT	*Treasurer.*

EXECUTIVE COMMITTEE:

J. H. ANDERSON, T. EWING MILLER, ALSTON ELLIS.

FARM COMMITTEE:

JAMES B. JAMISON, S. H. ELLIS. T. J. GODFREY.

FINANCE COMMITTEE:

ALSTON ELLIS, T. EWING MILLER, T. J. GODFREY,

FACULTY.

EDWARD ORTON, PH.D.,
President, and Professor of Geology.

SIDNEY A. NORTON. PH.D., M.D.,
Professor of General and Applied Chemistry.

JOSEPH MILLIKIN, A.M.,
Professor of English Language and Literature, and of the French and German Languages.

NORTON S. TOWNSHEND, M.D.,
Professor of Agriculture.

R. W. McFARLAND, A.M.,
Professor of Mathematics and Civil Engineering.

ALBERT H. TUTTLE, M.SC.,
Professor of Zoology and Comparative Anatomy.

LUIGI LOMIA, M.SC.,
First Lieut. Fifth Artillery, U. S. A.; Professor of Military Science and Tactics, and Adjunct Professor of Mathematics.

S. W. ROBINSON, C.E.,
Professor of Physics and Mechanics.

JOSIAH R. SMITH, A.B.,
Assistant Professor of the Latin and Greek Languages.

NAT. W. LORD, M.E.,
Assistant Professor of Mining and Metallurgy.

JOHN T. SHORT, A.M.,
Assistant Professor of History and Philosophy.

THOMAS MATHEW,
Instructor in Free-hand and Mechanical Drawing.

ALICE WILLIAMS,
Assistant in Department of Modern Languages.

JOSIAH R. SMITH, A.B.,
Librarian.

MISS S. GLOVER,
Assistant Librarian.

COLUMBUS, *November* 16, 1879.

To His Excellency,

GOVERNOR RICHARD M. BISHOP:

SIR: I have the honor to transmit herewith the Ninth Annual Report of the Board of Trustees of the Ohio State University, with accompanying documents, giving in detail the condition of said University.

Very respectfully, your ob't serv't,

ALBERT ALLEN,

Secretary of the Board.

REPORT OF THE BOARD OF TRUSTEES.

Concern for education began at an early date in Ohio. Before her birth as a State into the Union, it was announced in her territorial articles "that *religion*, *morality*, and *knowledge* being necessary to good government and the happiness of mankind, *schools, and the means of education* shall forever be *encouraged*."

The same declaration, only made more emphatic by affirming these things to be "*essentially* necessary," was ingrafted into the Constitution of 1802; and adding that they were to be "forever *encouraged* by *legislative provision* not *inconsistent with the rights of conscience*."

To make the operation of these bold and earnest declarations as broad and catholic as possible, so that the benefits contemplated might result to *all*, it was enacted that "no law shall be passed to prevent the poor in the several counties and townships within this State from an equal participation in the schools, academies, colleges, and universities, which are endowed in whole or in part from the revenue arising from the donations made by the United States for the support of schools and colleges." These were not empty expressions of sentimentalism or policy upon the part of the infant State, but made in good faith, and assured in their practical results by granting, for these purposes, one-sixteenth of the entire land area of the State.

The present gratifying condition of our educational affairs is the legitimate outgrowth and development of these early and liberal beginnings. Gradually, as a higher and more advanced form of civilization in letters, science, and art has demanded the investigation of new and untried fields of learning, the State has been among the first to inquire into and utilize such acquisitions. Although possessed of common schools for the elementary cultivation of the masses, and numerous academies and colleges, schools of law and medicine, for the qualification of the more ambitious in the learned professions, the expansion of our agriculture and manufactures could only be met through that wise and generous boon of the Congress of 1862, by which the establishment of "*at least one college*" in the State, "to promote the liberal and practical education of the *industrial classes* in the pursuits and professions of life" was secured.

Projected on this basis, the first session of this State Institution was begun in September, 1873. Six years have passed, and while perhaps the expectations of the more sanguine have not been fully realized, much has been done to stimulate State pride and inspire confidence in the scheme. It should not be forgotten, that a work of such magnitude and importance cannot be accomplished in a day, and that the benefits to result from it are not thus early to be measured by the number of students that have been drawn to the Institution. Ultimately, such a consideration should enter into any estimate of its merit and worth; but it must be remembered that during the period just mentioned our whole country has passed through severe financial distress, and that if a body of students less numerous than was expected have been in annual attendance, it, like other and all institutions of learning, has been deeply embarrassed from this cause. How to obviate in measure the immediate effect of this depressing influence has been the study of the Board of Trustees. Some arrangement to reduce the expenses of the student, so as to conform to the exacting nature of the times, was to be made, and to this end the large building known as the dormitory, and heretofore kept as a boarding-house at fair remunerative rates, has been converted into a *club house*, where students may be allowed to regulate the cost of living to any minimum amount consistent with their wishes or necessities. Already thirty-two students have availed themselves of this arrangement. The government of this "club" has been placed under the wise oversight of the President of the Faculty, whose constant supervision will be exercised in the interest of order and decorum. The sectional prejudice engendered in locating the University has not died entirely out, and the large number of young men absorbed by denominational colleges throughout the State is doubtless one of the causes which has affected the patronage of the University.

Again, the *general* scope of training and education, as proposed by the University, have, through the *limited* signification of its former title (*Agricultural and Mechanical* College), been misunderstood. Many have regarded its instruction as restricted to these two departments, and more are doubtless destitute of any knowledge whatever in relation to it. While the Board has employed the ordinary means of acquainting the public with its character, through the medium of newspapers, circulars, and the distribution of annual reports, it has felt that other and more effective methods should be adopted. To this end a plan has been devised, and will be inaugurated before the close of the session, by which it is believed that proper publicity will be given, and an increased attendance of students secured. Whenever the attendance is commen-

surate with the capacity of the University, reliance thenceforth may be placed in the retiring graduates properly to represent the University in every section where they may spend their post-student lives.

To reach a satisfactory conclusion on this matter, and to ascertain if any deficiency existed in the source of *instruction*, or management of the *internal* affairs of the University, as well, also, as to be certainly advised of the *necessity* of certain appropriations asked of the General Assembly, and their judicious expenditure, if granted, a visit was made to the Industrial University of Illinois, at Champaign, in the month of February last, this being one of the best organized and equipped colleges founded on the land grant, and having a large attendance of students, was selected for special inspection. The Board was favored on this visit with the presence and suggestions of a portion of the Finance Committee of both branches of the General Assembly, the President of the Faculty, and others.

Through the courtesy of President Gregory and the professors of the University, a full insight into its condition and management was had, and much valuable information gained. Four hundred students were in attendance. The original property foundation of the two institutions was very nearly equal, but the State of Illinois has appropriated in all, about $350,000 for the outfit of the college.

Impressed with the many attainable things which would lend attractiveness and value to our home institution, the Board, on their return, sought and received the hearty coöperation of the visiting members of the Assembly in trying to secure appropriations to cover the necessities of the Ohio State University.

While the Legislature did not see proper to appropriate for all the purposes asked, nor in some cases the amount deemed necessary by the Board, the following grants were made:

For mechanical laboratory and equipment	$9,600 00
For stock and farm improvement	3,000 00
For river improvement	1,500 00
For solar compass	500 00
For analyses required by State law	1,200 00

After careful consideration, a plan for the construction of

THE MECHANICAL LABORATORY

Was adopted, and the same approved by the Governor, Secretary, and Auditor of State. The legal requirement of advertising for proposals to build was observed, and the contract awarded to Messrs. Clark and Fahey,

the lowest bidders, at the sum of $4,550. The building is composed of stone foundation, brick walls throughout, and covered with slate; the north and west wings are respectively 32x77 and 32x61 feet, and one story in height, while the connecting corner, which is 34x38 feet, is two stories, and is ornamented by three towers. The building was begun July 21, and completed early in November, and proves, in all respects, well adapted to its object. The general purpose of this building and equipment is not simply to provide instruction in mechanic arts, but to teach the principles necessary to the intelligent designing, superintending, and managing of machinery.

With a view to the best and most economical

EQUIPMENT,

Prof. Robinson was delegated by the Board to visit the best schools of mechanics and machine manufacturing establishments in the east. No purchase of any kind was made until he had carefully inspected the University of Pennsylvania, at Philadelphia, the Stevens Institute, at Hoboken, the Sheffield Scientific School, of Yale College, the Worcester Free Institute, at Worcester, and the Institute of Technology, at Boston.

Prof. Robinson, in concluding his elaborate report relative to the outfit of these schools and their management, says: "We have a valuable lesson from others, enabling us, with the light of their experience, more intelligently to exercise the choice of facilities."

The purchases made for this department comprise the following articles, at the prices named:

Engine, shafting, and pulley	$490 00
Three engine lathes	1,050 00
Planer and shaper	659 00
Four hand lathes	360 00
Milling machine and grinder	666 00
Drilling machine	150 00
Heating apparatus	318 00
Cupola and furnace	121 00
Drills, reamers, taps, and dies	78 00
Extras on building	23 65
Tools for wood working	75 00
Tool cases and tools	173 00
Anvil and forging tools	75 00
Vises	88 00
Files	65 00
Steam engine indicator	72 00
Freights to date	54 56

With a small unexpended balance necessary to the purchase of material, and the payment of freight and architect's fees, this special department, so prominent in the organic act, may now be considered as measurably provided for. The Board recognizes with pleasure the gift of a piece of machinery, presented by B. F. Sturdevant, of Boston, to this department. The Board invites the Legislature to a careful inspection of these expenditures.

The status of the other departments remains largely unchanged. It was found necessary to add two laboratory desks in the chemical room, and to make provision for furnishing materials for experiment to the students at as low rates as possible.

A valuable accession has been made to the mathematical equipment through the purchase of a solar compass, with attachments and variations, for which an appropriation of $500 was made last winter.

A need of greater facilities for instruction is still felt in the schools of Agriculture, Zoölogy, and Drawing, and it is to be hoped the Legislature will extend its fostering care over these by ample provisions during the coming session.

A new department of *History and Philosophy* was created by the Board in June last, and placed under the charge of Prof. John T. Short, of Columbus, as assistant professor. Heretofore two elementary classes in History have been taught in the winter and spring terms. These will be continued, and made preliminary to the advanced course in History and Philosophy necessary to be studied by candidates for the degree of Arts. The class in attendance is an indicative of the want which this department is intended to supply.

On the application of the Board to the War Department, the detail of Lieutenant Lomia as Professor of Military Tactics and Science was extended to June, 1881. In addition to this duty the Board appointed professor Lomia as Adjunct Professor in Mathematics and Teacher of Elocution.

In the *Mining and Metallurgical Department*, it was not deemed expedient to continue the labors of both a regular and an assistant professor, and accordingly the department was placed in charge of Prof. Nat. W. Lord, as assistant professor at a salary of $1,200 per annum.

Excepting in instances just referred to, the professors in all other departments were continued for the ensuing year. A full detail of their respective work and class attendance can be more perfectly learned by reference to the separate reports herewith submitted.

Dr. Orton tendered his resignation as President at the close of last session. After due deliberation, the resignation was declined, and by the

unanimous wish of the Board his status to the University remains unchanged.

The College curriculum remains the same in its essential features, but a different distribution of the subjects has been made during the past year, by which it is better adjusted to the High Schools of the State.

The requirements for entrance have been very well adapted to the work of the common schools heretofore, and these requirements remain unchanged, but by the action now referred to, a suitable connection with high-school instruction has been provided.

Nearly three hundred students were in attendance during the year covered by this report, representing fifty-seven counties of Ohio, five States of the Union, and two foreign countries.

In general, the Board has great reasons to commend and approve the entire educational and disciplinary management of the University.

At the last commencement the following degrees were conferred, on recommendation of the Faculty:

The degree of Bachelor of Science on J. Scott Humphrey, Amasa B. McMackin, Mary F. Morrison, Henry Snyder, Jr., and Robert S. Towne.

The degree of B. A. on Warren F. Noble.

The degree (in course) of Ph. D. on Prof H. A. Weber, of Illinois.

The degree (honorary) of Ph. D. on Prof. John B. Peaslee, of Ohio.

The honorary degree of Doctor of Laws on Hon. Allen G. Thurman and Hon. Morrison R. Waite.

An amateur band of musicians, composed of the students, was formed last session, and encouragement, in the form of a few dollars, to buy suitable instruments, was appropriated. Their attainments have been very creditable, and will doubtless reach a high degree of proficiency.

FARM.

During the season that is now past, 228 acres of the farm have been under cultivation. The productions have been above an average. The methods employed in its management, and the results gained, can relatively be learned by a reference to the full report of the Farm Superintendent, herewith submitted. Heretofore the matter of fruit culture had been entirely neglected. During the spring 210 apple trees, 100 quince, 100 cherry, 30 plum trees, and 150 grape-vines, all of choice varieties, were planted, and in the main are growing well. Ornamental evergreens, intended to furnish protection to the orchard against the wintry storms, have been planted on the north and west sides of the orchard.

Experiments with reference to the profitableness of growing certain varieties of market vegetables and roots have been made, and the production of these will be increased. An addition of 12 14-100 acres of land, at a cost of $607 00, lying near the old river bed, and contemplated in the appropriation made by the General Assembly last winter of $1,500 for "river improvement," has been made to the farm, which now contains about 332 acres in all. This purchase was made necessary by the changed channel of the river, and the consequent separation and overflow of a part of the contiguous original lands. A well constructed and efficient dam was built across the old bed of the river at the head of this purchase, and a channel, adequate to carry the entire volume of water, was cut between the nearest points in the curve of the river, thereby uniting both the new purchase and the overflowed lands with the main body of the farm. To give undoubted security and permanency to this work, a larger expenditure of money than was at first estimated was required. The work could not stand incomplete, and to meet this excess, of some $934.80, the Board was compelled to draw from the appropriation made for the farm, and will appeal to the General Assembly this winter to reimburse it to that extent. The acquisition is a valuable one, and adds to the realty of the University.

The demands in other directions have been so imperative as to render it improper to expend any considerable sum in

LANDSCAPE IMPROVEMENTS.

While much should be done to render the surroundings of the University, in consideration of its national relation, more attractive, the Board could only lay the foundation for future improvements, in having some acceptable plat of the grounds made, to which the laying out of roads, the planting of trees, and other ornamental work should conform. This has been done by Prof. McFarland, and it is to be hoped the general beautifying of the grounds will not long be delayed. The sidewalk along the whole line of the farm bordering on High street has been graded, and desirable forest trees will be planted at proper early in the spring.

STOCK.

There is a prevailing idea in every State that the institutions founded upon the Congressional grant should, in virtue of their relations to the mechanic arts, agriculture, and other kindred pursuits, not only take the *initiative* in experimental work, but also be enabled to exhibit, in *actual production* and *possession*, evidences of a higher skill and superior

status than have been attained by individuals engaged in similar pursuits.

The same general idea prevails with reference to the breeding and owning of domestic stock of all kinds. It is not proper here to discuss the grounds of this opinion, or the extent of its correctness. But it is certainly the duty of the Board to avail themselves of all established progress and improvement in any of these matters. Acting on this conviction, and the peculiar fitness of the *Jersey cattle* to certain desirable ends connected with the University (such as dairy purposes, economy in keeping, etc), the Board purchased a small herd of one bull and six cows and one calf, of solid uniform color, the cows possessing extra milking qualities. These animals being the immediate descendants of imported animals, and recorded in the American Jersey Club Cattle Record, were individually selected for form, color, and other desirable characteristics, for the nucleus of a herd that would give character and credit to the University farm. While the manner and time of purchase secured economy or cheapness to the State, the future profitableness of the transaction is unquestionable. The aggregate amount paid from the appropriation for this purpose, in part, was, for the eight head, $958.50. The Board expects, at as early a date as is practicable, to lay the foundation of a herd of Durham cattle, and other choice breeds of stock.

VIRGINIA MILITARY LANDS.

There has been no great addition during the year to the discovery of Virginia Military Lands. Of those in possession of the University, the Board sold, November 29, 1878, to Mr. Erasmus Tucker, thirty-nine parcels of land in Scioto county, aggregating 11,903 13-100 acres, at the appraised value of $6,500, on the usual terms of one-fourth cash and balance in one, two, and three years, with six per cent. interest from date. This sale of all the lands owned by the University in Scioto county, in body, to one purchaser, was made to avoid the heavy *expense* and possibilities incident to separate sales of individual parcels to different parties, and under the belief that the principal and interest derived from the purchase money would exceed the final receipts from separate sales. The terms of this and all other sales made by the Board have been in conformity to section five of an act of the General Assembly passed April 3, 1873, as follows:

SEC. 5. And the said trustees are hereby authorized and required to sell all of said lands at public or private sale, at a price not less than the appraised value thereof, on such terms for cash and credit as may be agreed upon between the purchaser and said trustees or any authorized agent of theirs: provided, that the first payment shall, in every case, be not less than one-third of the appraised value of such tract; all deferred

payments shall bear six per cent. interest, to be paid annually, and said trustees may, in their discretion, extend subsequent annual payments through a period not exceeding five years.

The cash proceeds from the sale of other separate tracts, on the same terms, have amounted to $2,467.40. The payments made during the past fiscal year, on notes due and interest, amount to $2,812.60.

The discovery, survey, appraisement, recovery, and sale of these lands have involved much care, labor, and expense, which, together with many law-suits on adverse claims of individuals, have left but little clear profit from their possession. Still it is to be hoped that with the revival of general business, and a more remunerative price for agricultural products, a more profitable disposition can be made of what remains.

After a careful consideration of the immediate wants of the University, which can not be met by the resources of the fund, the Board would ask that the following appropriations be made for the objects named, viz.:

Library	$7,500 00
Department of Zoölogy and Physiology	2,000 00
Models and specimens in veterinary science	1,000 00
Green house for Botanical Department	5,000 00
Enlargement of Chemical Laboratory	1,000 00
Supplies for Mining Department	500 00
Wall and table cases in Geological Museum	1,500 00
Telescope	1,000 00
Equipment of Department for Drawing and Engraving	2,000 00
Farm improvement and stock	3,000 00
Landscape improvements in campus	2,500 00
Board expenses since 1871	5,150 99

This *last item* is the aggregate of "*necessary*" and "*reasonable*" expenses incurred by the Board of Trustees from the beginning of the College to the present time, and by the Legislature ordered to be paid, without making any provision therefor. As these amounts have been advanced from the interest fund, it would seem but just and right that they should be returned by the State.

For the performance of the duties mentioned in sections 4, 5, and 7, of act passed May 1, 1878, the Board beg leave to refer to the appended reports of the Faculty, Farm Superintendent, Treasurer, and reports of the Board proceedings.

In conclusion, the Board beg leave to say that they have endeavored, in the administration of the affairs of the University, to make all their acts conform to three leading principles—

1. The subordinating of everything to the line of the organic act creating the Institution.

2. The developing and expanding of every available resource in furnishing to the greatest number the highest form of practical education.

3. The management of all its interests with honesty, fidelity, and economy.

ALBERT ALLEN,
Secretary of the Board.

REPORT OF THE PRESIDENT.

HON. T. J. GODFREY, *President of Board of Trustees of Ohio State University:*

DEAR SIR: The report which I herewith present covers the calendar year that ends November 15, 1879.

This year has been the most successful in the history of the institution. Two hundred and ninety-four students have been in attendance in its several departments. The classes in the more advanced subjects of study, and in laboratory work, have been stronger than ever before, which is another way of saying that the institution is coming to do a larger share of true college work. Besides these facts, I am able to record some notable additions to the educational advantages of the University, which will be duly mentioned hereafter.

The standard of admission to the University remains unchanged. I venture to repeat my often expressed opinion that the requirements for entrance are, on the whole, the fairest and best that can be established, and I repeat the opinion, with the frequent discussions of the question, in and out of the institution, fully in mind. I believe that by a fair interpretation of the act of Congress and the State legislation, on which the institution is founded, it is made clear that the College was designed to supplement the common schools of the State, and that, therefore, it should begin its work of instruction where the common schools stop. As to what the work of common schools is, there can be no question. It is to give a competent knowledge of the common branches. As a matter of fact, they very seldom reach this result without doing something more. They bring in Algebra, United States History, and Natural Philosophy, and very few students acquire in them a satisfactory knowledge of Arithmetic, Grammar, and Geography, without taking up one or more of the branches named above. In our entrance examinations we lay stress on these common branches; but we also require the elements of Algebra. This demand is not found to stand in the way of properly qualified students from the country schools, and it serves a good purpose in keeping out of the college immature youths from the grammar schools of cities and towns, who are unable to do what is, in any proper sense, college work, and who have open to them in their high school courses exactly the opportunities that they need. I repeat, then, that we meet fully and fairly the common schools of the State. All students that have learned

what these schools ought to teach can enter our doors "without let or hindrance." Examinations in the common branches could well enough be made much more severe than we have yet made them. With increasing numbers in attendance it will be found practicable to obtain somewhat higher qualifications than we have thus far been obliged to accept, but no lower standard than that at present established can be admitt d without diverting the college from its proper work.

We have thus far failed to meet the high schools of the State as fairly as we have met the common schools, and the failure has been a serious disadvantage to us. A new adjustment of our preparatory work has just been effected, which promises to make as easy a transition from the high schools to the college as has always been maintained between the college and the country schools. Students coming from the latter will enter a two years' preparatory course, while a high school graduate can enter directly upon college work. There has been from the first a two years' preparatory course, but it has embraced hitherto studies not found in the ordinary high school course, or studies pursued in more extended courses than the high schools give, so that the graduate of the latter, on presenting himself for admission to the University, found in such studies as I have named, a barrier to his entrance upon full college work. By the reconstruction of our preparatory course, it is now made equivalent to the ordinary high school course, and henceforth the properly qualified high school graduate can pass examination in all our preparatory work and obtain standing in the freshmen class of the University.

I count this change a wise one, and likely to be very serviceable to the institution.

In connection with the changes in the preparatory department just named, the courses of study for the several degrees of the University have been remodeled to some extent. I think it safe to say that they have been materially improved. The new system utilizes more fully than the old one the various departments of the University and insures a more varied and symmetrical education.

A positive addition of great value has been made to our educational work by the establishment of a department of Philosophy and History. The recognition of these subjects in our curriculum comes none too soon. Their omission subjected us to grave criticism on the part of educators, and made our work seem one-sided and incomplete. I count the establishment of this chair a notable advance for the institution.

Prof. John T. Short was called to the new chair, and entered upon his duties in September last. Classes have already been organized in both subjects—Psychology and History, and are now in successful progress.

By the change of the status of the Mining Department from a full

professorship to an assistant professorship, the University loses the valuable service of Prof. John A. Church. The number of students in this department must be small for several years, as students are required to gain preparation for it in the other departments of the institution, but I am sure that its establishment was timely and wise, and that it will ultimately become one of the most attractive and largely chosen of our special courses.

The assistant professorship was filled by the appointment of N. W. Lord, M. E., who had previously been employed in the University in making the chemical analyses required by the State. No break in the instruction, or in the practical work demanded of the department has occurred, and a fair proportion of our students are shaping their studies for the degree of Mining Engineer.

I congratulate the Board on the success of its appeal to the last Legislature for appropriations in behalf of some of the departments of the University. The main item in these appropriations was one of $9,600 for the building and equipment of a Mechanical Laboratory. The building is now substantially completed, and money has never been more carefully and economically expended on the College grounds than in its erection. It presents a good exterior, and makes a fine addition to the structures of the University.

Its equipment consists of as good machinery, for the purposes required, as could be bought in the markets of the country. The laboratory will be in working order by the beginning of the winter term. I am confident that it will prove very serviceable to the interests of the University and of the State.

The outfit of the Department of Civil Engineering has been improved by the purchase of a solar compass. The means for this purchase, also, were furnished by the bounty of the State. The department now possesses a full set of approved instruments for the practical training of the engineer and surveyor.

In the Chemical Department additional desks have been placed. The whole of the space that can be used for desks is now occupied, and every place at the desks is in demand. The excellent opportunities offered in this department are appreciated by the students, and there is every reason for believing that at the opening of the ensuing year there will be a larger number applying for places in the laboratory than can be accommodated. There is little more available space to be had for this purpose without displacing other departments. The truth is, the Chemical Department needs a building to itself, and it is to be hoped that its necessities can soon be met.

Among the items indicative of progress during the last year, I must not omit to mention the success of the special course of lectures on Agriculture and the sciences pertaining thereto. At the date of my last report, it was still uncertain whether the course would be sustained by the farmers of the State in large enough numbers to justify the faculty in withdrawing the necessary amount of time and force from ordinary college work to carry on the lectures. The course was, however, opened with a goodly number of intelligent and earnest farmers present, and the interest and attendance increased to the end. There were more than one hundred names entered on the class register. It is to the State Grange that credit must be given for the success of the scheme, so far as gathering a lecture class on college grounds was concerned. The offer of such a course had been repeatedly made to the farmers of the State, but, while there were many to express their interest and approval, there was a lack of definite action, and so nothing but failures had heretofore resulted. To avert just such a failure in this instance, the State Grange interposed, and by means of its effective organization secured the requisite number of names to guarantee the course.

The success of the scheme was marked and gratifying. The college can find here a direct and immediate connection with one of the great interests to which it owes its origin that it will gladly use. I am happy to record that a second course of lectures has been agreed upon, to open on January 13, 1880, and to continue for three weeks. We are encouraged to expect a large attendance.

It is not to be denied that there has been distrust of the college on the part of many representatives of the agriculture of the State. Some seem to consider it false to the interests of agriculture because it is not wholly devoted to them. Others do not conceal their disappointment at its falling below some standard they have set for it in practical service. So far as these feelings of distrust and disappointment spring from the recognition of the fact that the land-grant colleges owe to agriculture peculiar service and obligations that can never be cancelled, they are a promise of good to the youthful institution—for a little jealousy is better than complete indifference. But no better service can be rendered to the agriculture of Ohio than to establish and maintain cordial relations between it and the school of science, which has for one of its chief objects to serve this great and fundamental interest.

I learn from the Farm Superintendent that during the past year students have earned by their labor on the college farm $1,250.00. This is a larger amount than has been earned in any previous year. I use the word *earned* designedly. The work has been carried on upon business

principles, but whatever could be profitably turned over to students, they have had the opportunity of doing. The money thus earned has enabled quite a number of our most meritorious young men to continue their studies without interruption, and the practical training received has certainly been o great service to such as expect to follow farming. The superintendent informs me that it is practicable to extend this kind of labor far beyond its present limits. I trust that the Board will favor the plans that look to such a result.

The order of the University is excellent. We have been happily free during our short history from the relics of that barbarism that still survives in so many colleges in the shape of hazing and the reckless destruction of property. During the six years in which the college building has been occupied, it is safe to say that six dollars would cover all the wanton injury it has received, while hazing and class insubordination are unknown in our experience—not a single class exercise having yet been interrupted by college tricks.

By the action of the last Legislature, military drill was made voluntary on the part of the students. This action remands the drill to an inconspicuous and unimportant place in college life. Human nature being what it is, it is certain that no body of college students will submit for any great length of time to the peremptory exactions of efficient military training unless they are obliged to do so. When obliged to submit, the great majority find no hardship in it, and drill, in such circumstances, becomes fairly popular. Military training is not essential to the successful working of a college, but I believe that it is a valuable accessory, and that it can be made to render service in several directions without detracting in any. Inasmuch as the organic law requires the teaching of military tactics in all of the land-grant colleges, and inasmuch as the General Government has, at the request of the college trustees, detailed an officer of the army to give this mil tary instruction, it seems to me that good faith requires that the subject shall be put upon the only footing on which it can achieve success, viz., as compulsory on the whole body of male students for at least a portion of their college course. I recognize, however, the fact that public sentiment in Ohio, so far as it takes cognizance of the subject at all, is divided in regard to it.

I renew my recommendation of last year that some change be sought for in the State laws which require the University to make chemical analysis of minerals and fertilizers without expense to the parties sending them. The laws are crude and impracticable, and lead to misunderstandings and dissatisfaction. It is recognized on all sides that the fertilizer law furnishes no protection to the interests concerned, but it can

be made to impose a vast amount of useless work on the University. We are glad to render all possible service in the development and protection of the interests of the State, but we ought not to be required to expend time and money on work from which there can be no valuable outcome. If the use of artificial fertilizers has become a large enough interest in the State to demand legislative control, it will be easy to devise a scheme that will accomplish the objects sought without doing injustice to any party.

An experiment has been begun in the use of the main dormitory building which promises a real and valuable service to the institution. Tuition being free in the University, and laboratory charges being kept at the lowest point, expenses would be lighter here than in any institution of equal grade in the country, if only the price of board could be controlled. Our students had already solved this question for themselves by the formation of clubs in the vicinity of the College, in which the cost of board, room, fuel, light, and washing was kept within $3.00 per week.

By granting the use of the dormitory free of rent to a student club, the trustees have reduced the figures for the items named above, to $2.50 per week, on the basis of last year's prices.

The University club is in excellent hands, the building has been very orderly, and in all ways it is rendering better service to the institution than it has ever done before, and, in short, it begins to justify its heretofore unprofitable existence.

The wants and needs of an institution like this are always numerous and urgent. A careful examination of the inclosed professorial reports will give you a fair view of the state of the departments which they represent, and of the necessities of these departments, as seen by the professors. I cordially indorse the applications which these reports contain for special appropriations, and I venture to reinforce some of these requests.

The largest amount asked for any one purpose is for the department of Zoölogy. This department has received next to nothing since its original outfit. It is thronged with students, and occupies a central place in our scheme of instruction. Every dollar that goes to it serves a large number, and is in all respects efficiently used. The physiological apparatus asked for will, if furnished, prove very valuable and effective.

General James M. Comly, United States Minister to the Sandwich Islands, has placed on deposit at the University a valuable and attractive set of sea shells from the islands where he now resides. The shells were collected at great outlay of time and labor, by an American missionary,

during a long residence in the islands. They will make a unique and beautiful addition to the Zoölogical Department, and can be bought, as I understand, far below the real cost of collection. I trust that provision will be made for exhibiting and for retaining them in the University.

I heartily second the application of Dr. Townshend for means to procure one of Auxoux's models of the horse. The subject of Veterinary Science, which Dr. Townshend treats so ably, is one of vast economical importance to the State, and next to nothing has been done for it thus far by the University. Such a model would prove instructive and serviceable in the highest degree. It would be of very great value in the winter lectures to which I have already referred, and of which, of necessity, the main burden falls upon the professor of Agriculture.

It is well, also, to bear in mind that nothing has ever yet been done by the University for Botany, and that the best service that can be rendered to this great subject is the building and stocking of a good green-house. Connected as it is with Agriculture in such a close and vital way, no good reason can be given why this department should be left undeveloped and neglected.

The wants of the Chemical Laboratory are constant, but they are real. No department in the University is doing more thorough and valuable work than this, and any weakening of it by failure to meet its often recurring necessities, trenches seriously upon the efficiency of the University. I hope that it will be found practicable to carry out all the recommendations contained in the report of this department, or, better still, to inaugurate steps for the only satisfactory provision for it, viz, the erection of a separate building designed expressly for its service and necessities. No great outlay would be required, and the best results would be secured.

There is an urgent need, as the Board and the general public know, of a large hall to accommodate the Commencement audiences and the other general exercises of the University.

The Geological collection is suffering from the want of proper protection. Attention has been repeatedly called to the need of cases for the valuable materials that have been accumulated here. The need grows more urgent continually, and the collection will deteriorate in value without such protection.

The necessities of the Library cannot be lost sight of in any statement of our wants. Books, costly books, old books and new, are an actual necessity to the advanced student. His work is provincial and behind the age unless he has access to them. I am not speaking of the everyday collections that can be found on any bookseller's shelves, and that can

be bought by the pound, but of works of research and original investigation in which the progress of science is contained, and without which the student's knowledge is thin and second-hand. A few hundred dollars wisely spent each year can do something toward filling the void.

This brings me to the subject of State aid. What is asked here and what can be shown to be essential to the proper efficiency of the college, is beyond the present means of the Board to grant. If given at all, it must be by the State, and to the State all that we need for expansion into much larger and more profitable service, is as but the small dust of the balance. I do not base the plea so much on the *duty* of the State to properly supplement the bounty of the general government and to finish wisely what it has begun to build, as on its *interest* in making the largest possible use of the magnificent foundation which the land grant and Franklin county have laid. The giving that we ask is of a kind that does not impoverish. I am persuaded that no other ten thousand dollars appropriated by the last General Assembly will prove anything like as profitable an investment to the State as the sum that has been so well spent in the new Mechanical Laboratory. To provide the training that we now can give to the master mechanic and mechanical engineer on any new foundation, would cost ten times the outlay required here, for but one thing needed to be added to the half dozen essential elements that were already accumulated in the college. Like arguments can be made for the other claims that we urge.

The details of my professorial work are appended here. The subjects in which I give instruction remain as at the date of the last report, except that History will henceforth be more satisfactorily provided for by the new department. My classes for the year covered in the report have been as follows:

First year Geology, 1878-9	17	members.
Second year Geology, 1878-9	5	"
General History, 1878-9	30	"
United States History (taught under my supervision)	20	"
Physical Geography, 1878-9	35	"
First year Geology, 1879-80	3	"
Elementary Geology, 1879-80	29	"

Very respectfully yours,

EDWARD ORTON.

OHIO STATE UNIVERSITY, *Nov.* 13, 1879.

DEPARTMENT REPORTS.

CHEMISTRY.

EDWARD ORTON, *Ph. D., President Ohio State University:*

DEAR SIR: I have the honor to present this my seventh annual report of the Chemical Department.

The class in General Chemistry for the past year numbered sixty-five. Of these, twenty-four passed at the final examination, twenty of them are again taking the study with the present class, and the remainder have dropped out of the University. The present class started with a list of sixty-five. The time allotted to the last class was but two terms. This was found, on trial, to be too short a time for the amount of study required, and provision is made, in future classes, of an additional two-fifths of a term. During a portion of the last summer term, a respectable number of the class attended a voluntary course of lectures with me, on topics connected with organic and applied chemistry. The work in this class of General Chemistry is done by lectures mainly. Lessons are, however, assigned daily in a text-book, and the progress of the students tested, partly by oral questions, and partly by frequent written examinations.

The number of desks in the Analytical Laboratory during the past year was twenty-four. Most of these were occupied all the time, the number of students actually enrolled being twenty-nine.

The Laboratory has now its full complement of desks, and can accomodate thirty-two students. More than this number applied for places, but for various reasons only thirty students were admitted. Of these, nine are in Quantitative Chemistry, three have had a term's work in Qualitative Chemistry, and the remainder began work this term. Should it be thought that there will be a further increase of students next year, I would recommend that the organic room be supplied with its complement of furniture, so that some of the quantitative students could work there. The furniture required is a long table, a foul gas hood, a steam hood, and the usual apparatus.

The Laboratory is quite well equipped for the students we now have. Another attempt has been made to secure good ventilation by utilizing the chimney flues in the east wall. I am persuaded that a great gain

would be secured by the purchase of a apparatus, for the manufacture and storage of sulphuretted hydrogen. With such an apparatus in use, we should economize material, as the waste would be greatly diminished, and also prevent the escape of this foul and poisonous gas into the larger room, at least in great quantity. This apparatus, with its fixtures, costs $100, and I did not feel authorized to include it in my purchases for the present year. I would be glad to have it set up and ready before the qualitative students enter upon the iron group. About $560 were expended in the purchase of apparatus and chemicals in Europe and the east, the balance being reserved for expenditures at home. Better provisions, in a few minor details, ought to be made for the quantitative students. The most important of these are a drying chest for precipitates, and additional facilities in apparatus for heating by steam. Now, that live steam is to be had all through the year, a special steam hood ought to be set up for quantitative students. The entire cost of such a hood, sufficiently large to accommodate a dozen students, would not exceed $100, and I respectfully advise its construction. We have also a Bunsen's filter pump on hand, which I purchased for the Laboratory seven years ago, which has not been set up. I wish it could be put in place at once.

As regards the business of teaching chemistry, experience has shown me that analytical students are prone to rest satisfied with the mechanical processes of analysis if only certain results are attained, and to neglect the principles and facts upon which their science is founded. I have always endeavored to counteract this tendency by making General Chemistry an indispensable introduction to the Laboratory, and by urging and requiring, as far as I can, frequent reviews of the larger text-books. I am now more than ever persuaded that Synthetical Chemistry demands a larger place in the teaching of chemistry than is usually given. I have, hitherto, given our students as much work as I could in this direction, and have generally had enough for them in the bye products of experiment and in the preparations needed for the Laboratory. Now, that our classes have become so large, it will be necessary, if sufficient practice in synthesis is given, to provide specially for it by the purchase of a stock of crude material. No work in chemistry is more delightful to the young chemist, than the making of preparations, and it can not be left out of a complete course of instruction in the science. Its proper place, in the first year's work, is to relieve the monotony of the daily routine, and to serve as a basis for reviews. In the second year, it may go hand in hand with the analytical work, without greatly interfering with the work of analysis. I wish, then, to be authorized to engage in more extended

work of this sort, and to be allowed a special sum of money for the purchase of the requisite material.

If, in this material, a portion were of the substances used in pharmacy, our students could, with little trouble to themselves, make a fair beginning in what is called Pharmaceutical Chemistry. Several of our students have left us to obtain special instruction in pharmacy elsewhere; and I think if we were to give a few additional facilities in this direction, it would be considered an advantage by quite a number, and, perhaps, all that they desire in this department.

The work actually done by our students is necessarily limited by the time at their disposal. To become accomplished chemists requires the work of years. It seems to me a matter of congratulation that so much good work has been done. The average work is excellent, and, if there are some marked failures, I think I may report that the department has been making progress in many directions—in its facilities for instruction, in the character of the work attempted, in the cheerful and careful work of the students, and in the attainments which the most of them have made.

Respectfully submitted,

SIDNEY A. NORTON,
Professor of Chemistry.

ENGLISH AND MODERN LAGUAGES.

OHIO STATE UNIVERSITY,
November 10, 1879.

President EDWARD ORTON:

MY DEAR SIR: I have the honor to submit the following report upon the Department of English and Modern Languages:

Previous reports have stated the plan according to which the Department is organized. I have only to note a few matters of detail.

To Miss Williams is due the credit of a wise modification of our old method of elementary instruction in French and German. Whilst close grammatical study and translation into English are as much insisted upon as ever, far more of composition in French and German is done. The gain is two-fold: 1st, the practical application of abstract grammatical truth fixes it the better in the memory, and the student is the better prepared to learn the conversational use of the languages. From writing to speaking the way is short and easy.

As an experiment, I have this year postponed Rhetoric to Logic in the

second year of my course. I find the disadvantages of the change greater than the gains, and shall return to the old order.

The Wednesday public rhetorical exercises have, of necessity, been made obligatory only upon students who have completed the two year's preliminary course. I am glad to state that in the Faculty's recent revision of our courses of study provision is made for the study and regular practice of English composition by our youngest students. Though there are few things harder to teach, there is nothing the teaching of which is more necessary.

Aware of the objections urged against the offering of prizes, I am not convinced by them, and last year offered first and second prizes (in books relating to the subject) to my class in Logic. The class was a large and good one, and whilst no one with wit enough to take a prize would work only for the sake of gaining it, the competition was sharp. Miss Warner took the first, Mr. Martin the second, with three others very close behind. I take the liberty of suggesting to members of the Board and other friends of the College this pleasant and sure way of publicly recognizing good work, and putting into the hands of those who have shown special aptitudes for a given kind of study, books that will aid them in its special pursuit. I have made the same offer to the Logic class of this year, but my own and other departments still furnish full opportunities for the exercise of liberality in this direction.

I earnestly call the attention of the Board to the great need I feel daily, and mention annually, of a small appropriation for books specially selected for use by students of the three languages and literatures, and of Rhetoric and Logic of my department. The Board rightfully expects of me the broad and scholarly treatment of these subjects, and I profess to give it. But I am in the awkward condition of being forced to discuss topics and authors the most important, of which my students have no means of gaining access. It has never occurred to me to begrudge my scientific colleagues their liberally devised facilities for teaching, and illustrating what they teach, but I regret very deeply that studies, the value of which they would be the last to depreciate, must be taught without any but the meagre loans and helps from my own small library, at cost of sad wear and tear and loss, I may add. Some of the heads of scientific departments have *large* sums, within the limits of which they may draw for supplies and equipments, subject, of course, to auditing by the Board. My own and Miss Williams's work would be greatly helped if but a relatively very *small* sum were put at my disposal to draw upon from time to time. To spend any sum in the lump is not the best way. I am constantly receiving catalogues, foreign and

domestic, that give me opportunities to buy what I want at less than, often but half the ordinary retail prices. Only this summer I could have bought at private sale for $50 books the department much needs, the regular prices of which amount to $122. They were the best editions, and as good as new. Give me leave to spend, from time to time during the next fiscal year $200, and the good results will be manifest at once, and till the books wear out. I respectfully ask for an appropriation of that amount, to be spent with both the freedom and the responsibility with which other heads of departments furnish their no more necessary apparatus and supplies.

The number of students in the various classes of my department is sixty-one. This is far fewer than I had last year, for two reasons: Many elect the studies of Prof. Short's new department who previously took mine as the only alternative from scientific studies save Prot. Smith's, and the large class in English of our "Required Course" now recites to Prof. Short.

I expect the best results in my own, as in every other department, from the recent revision of our curriculum. The classes will be more homogeneous as regards age, requirements, and number training, and this will be great gain. Again, the number of "irregular" students, whose choice of studies has often resulted in one-sidedness and narrowness, will be less by far, and work with a class of symmetrical mental build is much the more satisfactory.

The studies of the department of Philosophy and History are so intimately and vitally connected with those of my own that I rejoice in its establishment. It will strengthen and complement my own work very materially.

Very respectfully yours,

JOSEPH MILLIKIN,
Professor of English and Modern Languages.

BOTANY, AGRICULTURE, AND VETERINARY MEDICINE.

President ORTON:

DEAR SIR: The seventh annual report of the Department of Agriculture is respectfully submitted. Instruction in this department includes Structural, Systematic, and Economic Botany, the Principles of Agriculture, and Veterinary Medicine.

A class of fifty-four in Structural and Sytematic Botany of the required course recited daily through the third term of the year. The progress of a large majority of the class was highly satisfactory.

A class of six, in Systematic and Economic Botany, of the first College year, recited daily the three terms. From the lack of suitable provision for the illustration of advanced Botany, the work of this class was less satisfactory.

A class of eight was occupied through the year with the Principles of Agriculture, and made good progress. I am happy to acknowledge a valuable addition to the agricultural section of the University library.

A class of three pursued veterinary studies through the year, and had the advantage of models and specimens recently obtained. At the present time nine students are taking the course in veterinary science. One of Auzoux's models of the horse would be of great service to this department of instruction.

A report of farm experiments, made under my direction, will be found in detail in the report of Mr. C. E. Thorne, Farm Superintendent.

The lectures to farmers, given at the University in January, 1879, having relation in their subject matter to this department may properly be noticed here. To make the State University more immediately serviceable to the agricultural interests of the State, the Board of Trustees determined to provide a course of free lectures on topics of practical interest to farmers. These lectures were given by the professors of the University, beginning January 9th, and continued four weeks—four or more lectures each day. The experiment was a decided success; the total number of farmers in attendance exceeded one hundred, and the regular daily attendance was upwards of fifty. At the close of this course of lectures those who had attended, formally and unanimously expressed their satisfaction with the course of instruction, and united in a request that a similar course should be given at the University in January, 1880.

With great respect,

N. S. TOWNSHEND.

DEPARTMENT OF MATHEMATICS AND CIVIL ENGINEERING.

OHIO STATE UNIVERSITY,
COLUMBUS, OHIO, *November* 1, 1879.

EDWARD ORTON, *President:*

DEAR SIR: I make the following report on the work done in this department from November 1, 1878, to October 31, 1879, both inclusive:

The course of study laid down in the catalogue is closely followed.

The number of students in algebra was 65; geometry, 75; surveying, 34; trigonometry, 44; in other branches of civil engineering, 40; descriptive geometry, 12; astronomy 16; total 316. Omitting the number

of students who recited in more than one class, the number of different persons in the classes was 193.

The classes in surveying and kindred subjects were divided into sections of three or four students each, and each section took field exercises twice a week throughout the fall and the spring sessions, unless prevented by unfavorable weather or other sufficient cause. These exercises consisted in taking levels, measuring heights of accessible and inaccessible objects, distances of or between near or remote objects, surveying fields or the farm, measuring irregular outlines by means of offsets, setting out curves by various processes, and, finally, laying out a short line of imaginary railway, and making all the measurements for level, cross section, slope, contour, abutments of bridges and culverts, and estimating the amount of earth-work and probable cost, and making appropri te drawings.

In the winter session, when field work is ordinarily impracticable, the students are instructed in the various kinds of drawing pertaining to the work of engineers, viz., ordinary platting, topographic, isometric, and axonometric work, shades and shadows, and the general principles of perspective.

The ample appropriation by the Legislature for the purchase of a solar compass has been expended for the purpose designated, and the University is now furnished with Burt's solar compass, the patent solar attachment to the transit, an outfit complete in every respect.

To make the equipment complete we need a telescope, and I take this method of urging the proper authorities to make the purchase. The cost will not be great, but the advantage will be.

Very respectfully,

R. W. McFARLAND.

ZOOLOGY.

OHIO STATE UNIVERSITY,
COLUMBUS, OHIO, *November* 1, 1879.

EDWARD ORTON, PH. D., *President Ohio State University:*

DEAR SIR: I have the honor to submit the following report:

During the past year General James M. Comly, United States Minister to the Sandwich Islands, has placed on deposit in this department a valuable collection of the shells of the Sandwich Islands and the Pacific Ocean. Provision has been made for their suitable display. It would be very desirable to make some arrangement, if possible, whereby they might become the permanent property of the University.

No other additions of importance to the equipment of the department have been made since my last report. I would respectfully suggest the following for consideration, if the means at the disposal of the Trustees will allow:

First—I would recommend that some steps be taken toward the completion of the collection of the animals of Ohio, contemplated by the organic law of the University. A full collection of specimens, either stuffed or alcoholic, of the animals found in the State, would be interesting, as well as instructive, not only to students, but to the general public.

Next, and of equal importance with the preceding, I would urge the purchase of new skeletons of the domestic animals. Those now in our possession were purchased of an inexperienced preparator during the first year of the University, and have yielded so much to the effects of six years of use by students that they are no longer a credit to the institution. The same remarks will apply with even greater force to the human skeleton in our possession. It should certainly be replaced this year by a new one, while the great importance of a thorough knowledge of our own bodies renders it desirable, in my estimation, to have one or more unmounted duplicates.

Last, and most important, I would repeat earnestly the recommendation that I have made in previous reports, urging upon the Trustees the advisability of providing for the purchase of apparatus for practical instruction and laboratory study in Physiology. This alone, of all the branches of Natural Science taught in the University, is taught at present altogether from books. Advanced students of this important science, looking to the practice of medicine, either human or veterinary, ought certainly to be enabled to derive a large share of their knowledge from nature, instead of receiving it all at second hand, as now; and the value of such knowledge, not only to those who expect to have the lives of their fellow-men entrusted to their keeping, but also to those who will have to do with the breeding and care of our domestic animals, would far more than repay the necessary outlay.

An appropriation of two thousand dollars, to be divided equally between the purchase of physiological apparatus and the other objects mentioned, would, in my judgment, be far more than repaid in the increased usefulness of this department to the University and to the community at large. I trust that you will share this opinion with me.

Appropriations have been made by the Trustees during the past year sufficient to provide, at least in a measure, for the necessary current expenses of the dissecting-room, laboratory, and class-room.

The teaching force of the department has been increased by the appointment of an assistant for the elementary classes, resulting, as I believe, in an increased efficiency throughout the whole department.

Cleland's Physiology and MacAlister's Zoölogy have been used as text-books by the elementary classes in those studies. In the advanced classes, Foster's Text-book of Physiology and Mivart's Lessons in Vertebrate Anatomy are continued in use, while Huxley's Anatomy of Invertebrates has been introduced as a laboratory manual for advanced students in the department of Zoölogy.

The number of students in the classes of the department during the year are as follows: Elementary Physiology, fifty-two; Elementary Zoölogy, forty-five; Invertebrate Zoölogy (advanced), eight; Comparative Anatomy of Vertebrates, thirty-three; Physiology, thirteen; total class enumeration, one hundred and fifty-one. Deducting twenty-two, who have been enrolled in more than one class, the number of students who have entered classes in this department during the past year is one hundred and twenty-nine.

All of which is respectfully submitted.

ALBERT H. TUTTLE,
Professor of Zoölogy, etc.

MILITARY SCIENCE AND TACTICS.

OHIO STATE UNIVERSITY,
NOVEMBER 1st, 1879.

EDWARD ORTON, *President Ohio State University:*

DEAR SIR: I have the honor to make my fourth annual report to you of the departments under my charge.

I. MILITARY SCIENCE AND TACTICS.

This year the optional law has brought to the military drill thirty-eight (38) members. In addition to this number, fourteen (14) more have entered the department with the understanding that they are to be assigned to the cadet band; and, as I may have no occasion to allude to this organization further on, I take pleasure in stating here that the band leader, Sergeant Makepeace, is deserving of the highest praise for his industry, ability, and zeal in promoting the interests and efficiency of the band; it having already become an invaluable acquisition to the military department.

In the theoretical course I have this year twelve (12) students; ten (10) of these taking up the study of Tactics and Regulations, while two (2) are in the advanced Military Science class. Practical and theoretical instruction is being given as in previous years, and in accordance with methods stated in former reports.

I now pass to a very important point, namely: the present status of the drill.

That the optional plan is productive of indifferent results, is so self-evident that I need hardly attempt saying anything about it; I will, however, repectfully call your attention to the following:

By law of Congress there are thirty (30) officers on military detail in the United States. By actual correspondence with the officers on duty at the various colleges, I have ascertained that in twenty-three (23) of these colleges, or in about four-fifths of the whole number of institutions having army officers on detail, the drill is made obligatory upon all able bodied male students, for part, at least, of their college course, and as far as I can learn with marked success in all these cases.

Wherever the military drill has been left optional with the students the most injurious results have invariably ensued in connection with the military organization. And it is natural enough that this should be so. Suppose, for example, that a student elect the drill for one year, the limit at present at our University; now, though he may not leave the same during the year, he can do so at the next, when he may be most needed in the battalion to fill the place of corporal, sergeant, or lieutenant, according to his fitness; and thus it is plainly seen that in an organization constantly shorn of its best strength and life, no certain progress can be made. One year of military training is by no means sufficient to make either sergeants, lieutenants, or captains out of the raw material that joins the ranks; three, and perhaps four, years are more likely required to bring about the result, considering that less than three hours per week are devoted to military exercises, and that, only during the academic year. As a rule, then, it is very certain that a single year of instruction in this department is insufficient, as in that time the student can not become proficient, either as captain, lieutenant, or sergeant, and surely nothing is gained by the country; if students, while undergoing military discipline, are not made familiar with the duties devolving upon these offices at least. But to expect that, with an optional system, students will, year after year, voluntarily submit to such inconvenience and "*desagréments*" as the drill may impose upon them, is, indeed, to expect a very improbable thing. Most young men, when they have their option, would rather not have to clean up their

guns, black their shoes, and brush their clothes for an inspection day; would rather not have to do the hundred and one things necessary to be done if the aim is to make soldiers of them. At the Kentucky University, (Lexington, Kentucky), by the optional law, in the course of two or three years, the battalion, numbering at the start three hundred and over, dwindled down to *seven* members!

The officer on duty at this University, (to give an example of the optional system at other institutions), writes as follows: "Drill at the Kentucky University is optional with the students, and, I am sorry to say, but few elect to go into it. I have urgently advocated the compulsory course, but as yet with no prospect of success. I consider an optional course as very unsatisfactory and objectionable to all concerned."

Without further comment I will conclude, hoping that the Legislature will see the necessity of amending the legislation which forbids making the drill compulsory.

II. MATHEMATICS.

In this department I have charge of the Analytical Geometry and the Calculus—Differential and Integral. Eight students entered the class at the beginning of the term, but two of them, finding they had too many other studies on hand, were obliged to drop out. The class in this study will go through the Analytical Geometry and the Differential and Integral Calculus this year.

III. ELOCUTION.

In this I have opened with eighteen students. This number includes nearly all the members of the Senior Class. I am glad to notice an increase of interest manifested in elocution, especially by members of the higher classes; and if, as I respectfully suggested in my last report, a prize or two could be offered by the Trustees—one, say, for the best declaimer of prose, and one for the best declaimer of poetry—the department would doubtless be greatly benefited thereby.

I am, sir, with great esteem,

LUIGI LOMIA,

1st Lieut. U. S. Army, Prof. Military Science and Tactics, and Adjunct Prof. Mathematics.

PHYSICS AND MECHANICS.

OHIO STATE UNIVERSITY, *November* 10, 1879.

EDWARD ORTON, PH.D., *President:*

DEAR SIR: I submit the following, my second annual report, upon the Department of Physics and Mechanics:

The number of students in Elementary Physics during the winter

term of last year was somewhat less than in the fall term. This class was discontinued in the spring term, in accordance with a vote of the Faculty removing the third term of Physics from the preparatory course to the four year courses. The number of students in the Physical Laboratory was about eight during the year; in the Mechanical Laboratory the number of students increased till in the spring term the class numbered twenty-four.

The present number of students in the class of Elementary Physics is forty-six; in Advanced Physics and Physical Laboratory, eight; in Mechanical Laboratory, eight; in Hydraulics and Drawing, two.

PHYSICS.

The plan upon which the teaching of Physics is at present conducted, consists in elementary work, with text-book and lectures, for two terms in the preparatory course—principles being the object rather than mathematical discussions; then a third term in the College courses, more advanced, and with partly mathematical treatment, combined with a fifth of the time in experimentation; and, finally, five terms of higher laboratory practice.

Means for graphical illustration would be much improved by a photographic camera and appliances for preparing views for the lantern. The latter I have previously found to be very useful in preparing transparencies upon glass for the lantern, from drawings expressly prepared, or from illustrations not found in the books used in the class.

MECHANICAL ENGINEERING.

Instruction has already been given in this subject in the higher technical branches as well as in the practical. The plan of this instruction was detailed at some length in the previous report.

It is very gratifying to be able to state that the appropriation of the Legislature of last winter has so bountifully increased our facilities for instruction in this subject as to leave us scarcely second to any of the institutions of learning of the country in this respect.

The new Mechanical Building, containing six rooms, is L shaped, and 95 by 115 feet, and 32 feet through. The west wing, 30 by 60 feet inside, contains the machine tool room, as well as the benches, vises, and tool-cases for filing and fitting. The vises and tool cases are to number sixteen. Of the machinery there are to be three engine lathes, four hand lathes, one planer, one shaper or short planer, one milling machine, one upright drill, one grinder for tools, one blowing pan for forges and cupola

furnace, fifty feet of turned shafting, and a ten-horse power steam engine for power. This machinery is all of excellent make, thus serving as models of mechanical form and design, as well as for tools. The engine is compound, and to be fitted for indicator attachment. A dynamometer may also be attached to the fly-wheel so that valuable experiments may be conducted in steam engineering.

The first room in the north wing is for forging. It is to contain four forges, anvils, swages, etc. The next room is for moulding and casting in iron and brass. The cupola furnace for iron has a capacity for four hundred pound ingots. The third room is for wood-work, leading to pattern making, and will contain outfits for eight workmen. The upper room at the intersection of the L branches is intended for machine drawing and for class instruction in the higher branches of mechanical engineering. The lower room is intended for a mechanical museum, or for a depository for machines on exhibition, models, specimens of materials, etc. A collection for it has already begun, and I trust that the great manufacturing State of Ohio will not be long in doing its share toward filling not only this room with exhibits, but the other rooms of the building with young men.

The orders which have been given for equipment, most of which have already been filled, are as follows:

Engine, shafting and pulleys	$490 00
Three engine lathes	1,050 00
Planer and shaper	650 00
Milling machine and grinder	666 00
Upright drill	150 00
Four hand-lathes	360 00
Heating apparatus, completed	318 00
Drills, reamers, taps, and dies	78 00
Tools for wood-working	75 00
Tool-cases and tools for machine room	173 00
Anvils and forging tools	75 00
Vises, $83; files, $65; engine indicator, 72	225 00
Cupola, $100; blower accessories, $21	121 00
	$4,431 00

Presented by B. F. Sturtevant, of Boston, Mass., pressure blower, $33.

Materials required consist of belting, $90; iron, steel, and lumber, $100; oak for benches and piping on heating apparatus, etc.

Items to fall within the amount exceeding $4,500 and less $5,050:

Freight to date, $54 56; extras on building $23.65; architect's fees, 50 per cent. of $4,550, $227.50	$305 71
Probable freights and extras yet to be accounted for	25 00
	$330 71

Total except for materials	$4,761 71
Balance for materials	288 00

Yours, very respectfully,

S. W. ROBINSON.

LATIN AND GREEK.

EDWARD ORTON, PH.D :

DEAR SIR: I have the honor to transmit my fourth annual report for the department of Latin and Greek.

The tabular statement given below shows an increased attendance over last year, and I can report an increased measure of earnestness and enthusiasm in the work of the classes under my charge. My quantum of work is four daily recitations, including the three college classes and the second year preparatory Latin class. I am assisted in the preparatory work of the department by Mr. C. M. Lewis, a student who finished his classical course in the University last year with great credit, and who has charge of the two classes beginning respectively Latin and Greek. I supervise, so far as opportunity will permit, the work of these classes, by personal observation and by examinations during the term and at its close; and I can speak in very high terms of the faithfulness and efficiency of Mr. Lewis as a teacher. In my report of last year I spoke of the value of the preparatory classes in furnishing regular and homogeneous training to students who had hitherto suffered in that regard, and who were far from being fitted for entrance into the regular college classes. No one need now be turned away from this department on account of his lack of elementary training in Greek and Latin. The class membership of the department amounts to eighty, and is distributed as follows:

COLLEGE CLASSES.

Second year Latin	7
First year Latin	12
First year Greek	7

PREPARATORY CLASSES.

Second year Latin	14
First year Latin	32
Preparatory Greek	8
Total	80

As to the needs of the department, I can only reiterate what I have said in previous reports as to the value of photographs illustrative of ancient life and manners, and of works of reference, both historical and

critical. I would gladly acknowledge the acquisition to the library during the past year of several much needed volumes of this description. A valuable accessory to classical work would be a classical atlas (Spruner's is the best), to be placed in the library for the convenience of the students, many of whom are unable to purchase such an atlas, of whose valuable assistance they nevertheless ought not to be deprived. If the preparatory classes continue to grow as they have done, additional facilities for their work will become an imperative necessity. The large class in elementary Latin is at present obliged to use the President's recitation room. The scheme of recitations and lectures laid down in the course of study for this department has been in the main adhered to, with such small alterations as the interests of the several classes have made necessary.

Very respectfully yours,

J. R. SMITH,
Assistant Professor.

MINING ENGINEERING AND METALLURGY.

COLUMBUS, OHIO, *Nov.* 1, 1879.

EDWARD ORTON, *President:*

DEAR SIR: I have the honor to present the following report on the condition of my department.

The number of students in the course of Mining and Metallurgy during last year was three, one of whom, Mr. R S. Towne, having completed his studies at the University, is now engaged as assistant engineer of a mining company at Leadville, Colorado.

The class of preparatory students in the required course of Mineralogy was large, numbering thirty-seven.

The present year starts out with five students in the classes of Mining and Metallurgy, while several others are arranging their preparatory work with a view of entering this department when fitted for so doing.

The instruction in this department comprises a two years' course in the special studies, Metallurgy, Mining, Theory of Veins, Mineralogy, Assaying, and Ore Dressing. The method is by lectures, laboratory practice, and, when possible, by text-books.

The mineral collection of the department has been increased by a fine set of crystal models, made under the direction of Prof. Church last spring, and by minerals purchased from time to time.

The State laboratory during the past year has been crowded with work. During the year ending November 1, 1879, one hundred and fifty-seven analyses were reported to various parties of this State, in ac-

cordance with the act of the Legislature establishing the laboratory. The value of this work to the metallurgical interests must have been very great, as the analyses were principally of iron ores, limestones, and coals. Analyses were also made of a number of fertilizers, but as there is no law requiring uniformity of composition, the occasional analysis of small samples cannot be of much value. The chemical work done by practicing chemists would have cost the parties sending the analyses over fifteen hundred dollars.

Owing to the changes in this department it will be impossible to do so much of this work for the coming year, still such as is most important will receive the attention it must here.

The laboratory will require about two hundred dollars worth of supplies during the current year, outside of the necessary expenses connected with the department of instruction.

Respectfully submitted.

NAT. W. LORD, E. M.,
Assistant Professor of Mining.

HISTORY AND PHILOSOPHY.

OHIO STATE UNIVERSITY, COLUMBUS, *Nov.* 8, 1879.

EDWARD ORTON, PH.D., *President:*

DEAR SIR: As but two working months of the college year have elapsed since the establishment of the department committed to my care, this, my first annual report, necessarily has many of the characteristics of a prospectus.

The appreciation manifested at the opening of the year for studies in History and Philosophy was highly encouraging. Eighteen students elected advanced History, and eight the Philosophy. On account of unavoidable conflict with the hours for other recitations, these classes were reduced to eleven and six respectively. The interest displayed at the outset has been maintained, and it is but fair to state that the work performed by both classes thus far has been characterized by earnestness and fidelity.

The course of study contemplated for the department is as follows:

PREPARATORY COURSE.

Second Term—*United States History* (Eliot.)
Third Term—*General History* (Freeman.)

COLLEGE COURSE.

ADVANCED HISTORY—ONE YEAR.

First Term—*The Middle Ages.* Text-book, Hallam. Lectures, especially on the English Constitution.

Second Term—*Modern Europe.* Text-book, C. D. Yonge's Three Centuries of Modern History. Lectures on the present condition of the Great Powers.

Third Term—*The Constitutional History and Civil Polity of the United States.* Lectures.

PHILOSOPHY—ONE YEAR.

First Term—*The Principles of Psychology.* Lectures on the History of Philosophy.

Second Term—*The Principles of Psychology.* Lectures on the History of Philosophy.

Third Term—*Ethics.* Lectures on the History of Ethics.

In addition to the text-book work in History, each student is required to prepare a thesis each term, on a historical question pertinent to the subject in hand. In order to facilitate investigation, the student is provided at the beginning of the term with a printed list of questions, accompanied by references to works in the University, State and City libraries. The theses presented this term have generally evinced a spirit of research which is highly commendable.

It is earnestly hoped that at an early day a moderate appropriation may be made for the purchase of necessary works of reference relating to History and Philosophy, to be placed in our University library, now so barren in those departments. Without such works special study is next to impossible.

The methods employed in teaching Philosophy are such as tend to promote large liberty of opinion and original investigation on the part of the student. I am happy to acknowledge the cordial recognition of the new department as is shown by the prominence you have bestowed upon it in the recently adopted curriculum.

In addition to the work in my own department, I have charge of the class in Elementary English, composed of thirty-seven students.

Very respectfully,

JOHN T. SHORT,

Assistant Professor of History and Philosophy.

MECHANICAL AND FREE-HAND DRAWING.

EDWARD ORTON, *Ph.D., President Ohio State University:*

DEAR SIR: I have the honor to submit my report for the department of Mechanical and Free-hand Drawing.

The provision made for this necessary study has, during the past year,

been very largely utilized by the students, one hundred and eighty (180) having received instruction in branches useful either in their technical studies or for teaching in the public schools, many of the students spending two or three hours in this work daily.

The usual course of instruction includes drawing from elementary studies upwards, from flat copies or points. For drawing the round we use plaster casts, the drawing being made either in neutral tint or with the stump.

There has been an increase in the number of those attending to mechanical and free-hand drawing, tinting, and lettering.

The drawing on stone and printing are valued by students as evidence of their improvement. Some very good pictorial work has been done.

Lithographic diagrams for the use of students, drawn and printed by students, have been supplied to the department of Chemistry and the School of Letters.

In addition to time spent in tuition, I have painted in oil diagrams for the departments of Geology and Military Science and Tactics, and have painted in water colors some pathological work for the Department of Agriculture.

The improvement of the students in drawing is very satisfactory, as evidenced by their exhibit in the department at the beginning of the college year

Some of the lady students have made floral designs, drawn and painted from nature, very carefully and well executed.

For many this department will no doubt give the means of obtaining a livelihood, should circumstances require it. The large percentage of lady students taking drawing, and the interest shown in the branches of applied art as taught in this department, should insure for it the same facilities which are accorded to departments in which young men are fitted to become their own bread-winners.

During the year a few new plaster casts have been added to the drawing models (classical busts, etc.), a portion of the usual material for art training.

Every educated person is expected to possess a taste for art, which must be based on knowledge, and this is best acquired by careful study of accepted masterpieces.

I trust in the future more ample provision will be made for this department, commensurate with its claims to utility.

Respectfully submitted,

THOMAS MATHEW.

CIRCULAR AND CATALOGUE.

FACULTY.

EDWARD ORTON, PH.D.,
President, and Professor of Geology.

SIDNEY A. NORTON. PH.D., M.D.,
Professor of General and Applied Chemistry.

JOSEPH MILLIKIN, A.M.,
Professor of English Language and Literature, and of the French and German Languages.

NORTON S. TOWNSHEND, M.D.,
Professor of Agriculture.

R. W. McFARLAND, A.M.,
Professor of Mathematics and Civil Engineering.

ALBERT H. TUTTLE, M.Sc.,
Professor of Zoology and Comparative Anatomy.

LUIGI LOMIA, M.Sc.,
First Lieut. Fifth Artillery, U. S. A.; Professor of Military Science and Tactics, and Adjunct Professor of Mathematics.

S. W. ROBINSON, C.E.,
Professor of Physics and Mechanics.

JOSIAH R. SMITH, A.B.,
Assistant Professor of the Latin and Greek Languages.

NAT. W. LORD, M.E.,
Assistant Professor of Mining and Metallurgy.

JOHN T. SHORT, A.M.,
Assistant Professor of History and Philosophy.

THOMAS MATHEW,
Instructor in Free-hand and Mechanical Drawing.

ALICE WILLIAMS,
Assistant in Department of Modern Languages.

JOSIAH R. SMITH, A.B.,
Librarian.

MISS S. GLOVER,
Assistant Librarian.

STUDENT ASSISTANTS.

EDWARD HYATT,
Assistant in American History, and in President's Office.

ARTHUR CUNNINGHAM,
CHARLES M. LEWIS,
Assistants in Latin and Greek.

STACY B. BEEBE,
HORACE L. WILGUS,
Assistants in Mathematics.

DAVID O'BRINE,
Assistant in Chemistry.

CHAUNCEY B. BAKER,
Assistant in Zoology.

ORGANIZATION AND EQUIPMENT.

The Ohio State University is founded on the Congressional land grant of July, 1862. By that act a large amount of the public land was turned over to the several States, the proceeds of the sales to be devoted to the better education of the industrial classes. The share of each State was proportioned to its representation in the National Legislature, and thus six hundred and thirty thousand acres came into the possession of Ohio. This munificent gift was unfortunately pressed for sale upon a temporarily overstocked market, and the State realized only fifty-four cents to the acre. The total amount of the sales ($342,450) was, however, put at interest, and when the institution was opened, in September, 1873, the principal and interest together constituted a productive fund of something over $500,000, the annual income from which slightly exceeds $30,000.

The Legislature having passed an act to authorize the several counties of the State to raise money to secure the location of the University, an offer of $300,000 from Franklin county was accepted by the Board of Trustees, and the University was permanently located at Columbus. The money furnished by Franklin county has been mainly expended in the three following items: 1. The purchase of a valuable farm of three hundred and twenty acres within the corporate limits of the city of Columbus. 2. The erection of a spacious and elegant college building and two dormitories for students. 3. The equipment of the various departments of instruction in the University.

The total value of endowment and property at the present time exceeds $1,000,000.

The departments already established, and the provisions made for giving instruction in them, are as follows:

I. PHYSICS.

For this subject ample provision has been made in the equipment of the institution. It is safe to say that, in the opportunities afforded for thorough study in it, the University already surpasses most of the institutions of the country. Its laboratory is supplied with expensive and well-selected apparatus, designed not only for illustration, but also for

original research in all the leading divisions of the science. Students are directed to its use in the way of original investigation as soon as they are properly prepared to undertake such work.

II. CHEMISTRY.

The course in Analytical Chemistry provides full instruction in all departments of the science. In connection with the ordinary work of Qualitative Chemistry, the student is taught the use of the spectroscope, and of the blow pipe in Determinative Mineralogy.

The course in Quantitative Chemistry includes both the volumetric and the gravimetric methods. The student will also be assisted in any special branch of the science that he may desire, and take up in detail topics which relate to pharmacy, medicine, agriculture, and other sciences in which the principles of Chemistry are applied.

III. ZOÖLOGY.

The subject of Zoölogy, as its growing importance well deserves, has been assigned to a distinct professorship, and means have been provided for making the instruction in this subject thorough, practical, and extensive. A large amount of material, selected with special reference to its availability in teaching, has already been accumulated.

A dissecting-room, with good facilities for the study of veterinary anatomy, is also furnished, while for practical training in microscopy there have been supplied eight microscope stands, representing all the principal modes of construction, and nineteen objectives, giving powers up to 2,500 diameters.

IV. BOTANY.

Permanent provision has not yet been made for this subject, but the Professor of Agriculture will give instruction in it for the present. By the will of the late William S. Sullivant, Esq., the library of this distinguished botanist has come into possession of the University. It contains not only many standard treatises on the subject, but also several rare and valuable works. An herbarium, representing quite completely the flora of Ohio, is accessible to the student.

V. GEOLOGY.

The University is able to present unusual advantages for the study of Geology. By act of the Legislature it has been put in possession of all the collections made by the State Geological Survey during its five years of service, and these collections have been supplemented by valuable

additions of fossils and minerals from various sources. The State collection embraces a very complete representation of every geological formation shown in Ohio.

VI. AGRICULTURE.

The department of Agriculture, which also includes the *diseases of animals* and their *medical and surgical treatment*, is provided for in a distinct professorship, the aim of which is to acquaint the student with the theory and practice of a truly rational system in this most important field. The course extends through two years, and is rendered practical by being constantly connected with the work that is carried on upon the farm. Numerous opportunities are afforded to the students in veterinary medicine of observing the treatment of diseased animals.

VII. MATHEMATICS.

Under the two professorships that divide the work of Mathematics between them a full course of instruction is provided for, including also the subject of Astronomy. A term is given to Trigonometry, and one and a half terms are given to each of the two subjects, Analytical Geometry and Calculus. The work of several other departments, especially Civil Engineering, Physics and Mechanics, and Chemistry, require the constant and practical application of the knowledge acquired in mathematical study. A term is given to Astronomy, but no special facilities have thus far been furnished in this subject.

VIII. MECHANICAL AND FREE-HAND DRAWING.

Instruction in these subjects is provided in the University, and all needful facilities are furnished by which those who wish may acquire skill in the several departments of drawing. Drawing is made a prominent element in the education of all students in engineering.

Practical lithography and photography are also taught in this department, all the necessary apparatus being placed at the student's disposal.

IX. CIVIL ENGINEERING.

This course, which extends through two years, includes surveying, location, and construction of roads and railroads, construction of bridges, strength of materials, geodesy, etc. The time of one professor is chiefly devoted to this department. Field-work is extensive and varied, for the execution of which a full set of engineering instruments of the finest construction is provided.

X. MINING ENGINEERING.

This department has now been in operation for a year, and classes are established in the several branches belonging to it. The mining of coal and the manufacture and working of iron are recognized as leading subjects in it, but full courses of instruction are offered in general metallurgy. The department is well equipped, both for instruction and practical work.

XI. MECHANICAL ENGINEERING.

The University is now able to offer excellent advantages in this important subject. A mechanical laboratory has been established and is in successful operation. The Russian system of hand-training has been introduced, which insures the imparting of a measure of practical skill, together with theoretical instruction.

XII. MILITARY SCIENCE AND TACTICS.

In accordance with an act of Congress, an officer of the United States army has been detailed by the War Department to give instruction in the subjects named above. An extended course of lectures and recitations in Military Science is offered to such students as desire it—as is also thorough instruction in military drill.

XIII. ENGLISH, FRENCH, AND GERMAN LANGUAGES.

In the organization of the University, special prominence is given to the modern languages. Some of the students who resort here will study no language but their own, and it is, therefore, imperative that the opportunities for training in English should be made ample, while all who expect to attain any good degree of proficiency in the natural sciences must certainly acquaint themselves with French and German.

The course of study in the English language and literature has been made especially complete—as full and thorough as any offered in the colleges of the country. Rhetorical training of all students in the regular courses is also included here.

French and German can be pursued in courses as extensive as the needs of the student may require.

XIV. LATIN AND GREEK LANGUAGES.

Ample provision is also made for the study of the Latin and Greek languages, not only in compliance with those terms of the organic law of the University which forbid the exclusion of classical studies, and which

declare one of the aims of the institution thus endowed to be "the liberal education of the industrial classes," but also because of the great advantage which such study gives in acquiring a thorough knowledge of our own and other modern languages; and, in the last place, but not the least important, because of the relations which they bear to literary, historical, and scientific studies.

XV. PHILOSOPHY AND HISTORY.

Courses of study in these important subjects are now organized. To the study of Psychology and Ethics a year is given, and the same amount of time to European and American History. The subjects are taught both by text-books and lectures, and the student is trained, as far as possible, to habits of independent research.

DEGREES AND COURSES OF STUDY.

The University offers three general degrees, viz., Bachelor of Arts (A.B.), Bachelor of Philosophy (Ph.B.), and Bachelor of Science (B Sc) It also offers four special degrees, viz., Civil Engineer (C.E.), Mining Engineer (M.E.), Mechanical Engineer (Mech. E.), and Bachelor of Agriculture (B. Ag.)

In addition to these degrees, certificates of work done in the several departments will be granted, as hereafter stated.

The courses of study which lead to the above-named degrees can be learned from the following statements and schedules.

A Preparatory Course of two years' duration is provided for those students who enter the University directly from the common or district schools. This course includes the ordinary studies of the better grade of the high schools of the State. It is expected that the graduates of these schools can sustain examination in the entire Preparatory Course, and enter directly upon proper college work.

The Preparatory Course is shown in the following schedule:

PREPARATORY COURSE.

FIRST YEAR.

First Term—Algebra, from Quadratics; Physical Geography; Latin or German.

Second Term—Algebra, completed; United States History; Latin or German.

Third Term—Botany; General History; Latin or German.

Exercises in English Grammar and Composition one hour each week throughout the year.

SECOND YEAR.

First Term—Geometry; Human Physiology; Latin or German.

Second Term—Geometry, completed; Physics; Latin or German

Third Term—Trigonometry; Physics; Latin or German.

Exercises in Rhetoric and English Composition one hour each week throughout the year.

Either Latin or German, as named above, is to be chosen for a two years' course. Students looking forward to the degree of Bachelor of Arts or to the degree of Bachelor of Philosophy will take Latin: candidates for other degrees will take German.

Text-Books.—Algebra, *Loomis;* Geometry, *Loomis;* Trigonometry, *Loomis;* Physical Geography, *Guyot;* Human Physiology, *Huxley;* United States History, *Eliot;* General History, *Freeman;* Botany, *Wood.*

The text-books in Latin and German will be found under the heads of these departments on a subsequent page.

GENERAL AND TECHNICAL COURSES.

In the following schedules the studies required for the several degrees of the University are named. The character and amount of the work done in each can be further learned from the detailed statements in regard to the departments that follow the schedules. It will be observed that a considerable amount of the work is common to the several courses, and, further, that this common work is made, for the most part, synchronistic in the courses.

(A.) GENERAL COURSES.

FOR THE DEGREE OF BACHELOR OF ARTS.

Freshman Year.

First Term.	Latin, *Livy, Books I and XXI.*	Greek, *Leighton's Lessons.*	Chemistry, *Norton.*
Second Term.	Latin, *Cicero, De Senectute.*	Greek, *Lessons and Anabasis, Book I.*	Chemistry, *Norton.*
Third Term.	Latin, *Horace, Odes.*	Greek, *Anabasis, Books II and III.*	Chemistry, 2-5, *Lectures.* Mineralogy, 2-5, *Dana.*

Free-hand Drawing two hours each week throughout the year.

Sophomore Year.

First Term.	Latin, *Horace, Satires.*	Greek, *Memorabilia and Phaedon.*	Botany, 3-5. Zoology, 2-5.
Second Term.	Latin, *Tacitus, Germania, and Agricola.*	Greek, *Herodotus' Selections.*	Zoology, *Packard.*
Third Term.	Latin, *Plautus, Terence, Quintilian.*	Greek, *Euripides, Alcestis.*	Zoology, *Packard.*

Junior Year.

First Term.	English Literature, *Anglo-Saxon.*	Greek, *Homer, Odyssey.*	Geology, *Le Conte*
Second Term.	English Literature, *Middle English.*	Greek, *Sophocles, Œdipus*	Geology, *Le Conte.*
Third Term.	English Literature, *Modern English*	Greek, *Demosthenes*	Astronomy, *Loomis.*

Senior Year.

First Term.	Psychology, *Porter.*	Rhetoric, *De Mille.*	Elective course in Science or History for the year.
Second Term.	Psychology, *Porter.*	Rhetoric and Logic.	
Third Term.	Ethics, *Bascom.*	Logic, *Jevons.*	

FOR THE DEGREE OF BACHELOR OF PHILOSOPHY.

Freshman Year.

First term.	Latin, *Livy*	French, *Grammar, Duffet.*	Chemistry, *Norton.*
Second Term.	Latin, *Cicero.*	French, *Masson's Classics*	Chemistry, *Norton.*
Third Term.	Latin, *Horace.*	French, *Masson's Classics*	Chemistry, 2-5, *Lectures.* Mineralogy, 3-5, *Dana.*

Free-hand Drawing two hours each week throughout the year.

Sophomore Year.

First Term.	Latin, *Horace.*	French, *Moliere.*	Botany, 3-5. Zoology, 2-5.
Second Term.	Latin, *Tacitus.*	French, *Corneille.*	Zoology.
Third Term.	Latin, *Plautus, etc.*	French, *Feuillet.*	Zoology.

Junior Year.

First Term.	History, *Hallam.*	English Literature, *Early.*	Geology.
Second Term.	History, *Yonge.*	English Literature, *Middle.*	Geology.
Third Term.	History, *Lectures.*	English Literature, *Modern.*	Astronomy.

Senior Year.

First Term.	Psychology, *Porter.*	Rhetoric, *De Mille.*	Elective course in Science for the year.
Second Term.	Psychology, *Porter.*	Rhetoric and Logic.	
Third Term.	Ethics, *Bascom.*	Logic, *Jevons.*	

FOR THE DEGREE OF BACHELOR OF SCIENCE.

Freshman Year.

First Term.	Analytical Geometry.	French, *Duffet.*	Chemistry, *Norton.*
Second Term.	Differential Calculus.	French, *Massonc Classics*	Chemistry, *Norton.*
Third Term.	Integral Calculus.	French, *Masson's Classics*	Chemistry, 2-5, *Lectures.* Mineralogy, 3-5, *Dana.*

Free-hand Drawing two hours each week throughout the year.

Sophomore Year.

First Term.	Elective course in Botany, Chemistry, or Physics for the year.	French, *Moliere.*	Botany, 3-5. Zoology, 2-5.
Second Term.		French, *Corneille.*	Zoology.
Third Term.		French, *Feuillet.*	Zoology.

Junior Year.

First Term.	Elective course in Botany, Chemistry, or Physics for the year.	Elective course from list of sciences already given, with addition of vertebrate Anatomy.	Geology.
Second Term.			Geology.
Third Term.			Astronomy.

Senior Year.

First Term.	Elective course from Science or from Psychology and Ethics.	Elective course from list of sciences given above, with the addition of Geology and Physiology.	Rhetoric, *De Mille.*
Second Term.			Rhetoric and Logic.
Third Term.			Logic, *Jevons.*

It will be observed that at the beginning of the Sophomore Year of the Bachelor of Science course an advanced course in science is to be selected from such branches as have been already studied in their elementary forms in either the Freshman Year or in the Preparatory Course. The choice at this time is therefore confined to the three following, viz., Botany, Chemistry, and Physics.

At the beginning of the Junior Year the list of electives is extended by the addition of Vertebrate Anatomy, and at the beginning of the Senior Year by the addition of Paleontology, and also Philosophy and Ethics.

In the Senior Year of the courses for the degrees of Bachelor of Arts and Bachelor of Philosophy, there is also an election to be made by the student. In the former, he can choose from any of the sciences the elements of which have been previously given, and also from History; in the latter, his election is confined to the sciences.

Rhetorical exercises are required of students in all the above-named courses throughout the Sophomore, Junior, and Senior Years.

(B.) TECHNICAL COURSES.

The courses for the special degrees of Civil Engineer, Mining Engineer, and Mechanical Engineer, agree with the course for the degree of Bachelor of Science for the Freshman Year. They also have several studies in common with all the courses already named, as will be seen by the schedules. The course for the degree of Bachelor of Agriculture differs to a considerable extent from the courses previously described.

FOR THE DEGREE OF CIVIL ENGINEER.

Sophomore Year.

First Term.	Surveying.	French.	Analytical Chemistry.
Second Term.	Descriptive Geometry.	French.	Analytical Chemistry
Third Term.	Calculus.	French.	Analytical Chemistry.

Junior Year.

First Term.	Analytical Mechanics.	Geology.	Analytical Chemistry.
Second Term.	Mahan's Civil Engineering.	Geology.	Analytical Chemistry.
Third Term.	Astronomy.	Geology (Economic).	Analytical Chemistry.

Senior Year.

First Term.	Roads.	Physics.	Strength of Materials.
Second Term.	Drawing—Shadows and Perspective.	Physics.	Assaying.
Third Term.	Geodesy.	Physics.	Plans, etc.

FOR THE DEGREE OF MINING ENGINEERING.

Sophomore Year.

First Term.	Projection Drawing.	Surveying.	Analytical Chemistry.
Second Term.	Descriptive Geometry.	Mahan's Civil Engineering.	Analytical Chemistry.
Third Term.	Special Drawing.	Calculus.	Analytical Chemistry.

Junior Year.

First Term.	Geology.	Analytical Mechanics.	Analytical Chemistry.
Second Term.	Geology.	Metallurgy.	Analytical Chemistry.
Third Term.	Geology (Economic).	Metallurgy.	Analytical Chemistry.

Senior Year.

First Term.	Theory of Veins.	Metallurgy.	Strength of Materials.
Second Term.	Mining Engineering.	Plans, Specifications and Estimates for Metallurgical Works.	Assaying.
Third Term.	Coal Washing and Mechanical Treatment of Ores.	Plans, Specifications, etc.	Mineralogy and Blowpipe Analysis.

FOR THE DEGREE OF MECHANICAL ENGINEER.

Sophomore Year.

First Term.	Projection Drawing.	French.	Mechanical Laboratory.
Second Term.	Descriptive Geometry.	French.	Mechanical Laboratory.
Third Term.	Calculus.	French.	Mechanical Laboratory.

Junior Year.

First Term.	Geology.	Physics.	Analytical Mechanics.
Second Term.	Geology.	Metallurgy.	Mechanism.
Third Term.	Astronomy.	Metallurgy.	Mechanism.

Senior Year.

First Term.	Thermo-Dynamics.	Physics.	Strength of Materials.
Second Term.	Prime-Movers.	Physics.	Technical Drawing.
Third Term.	Mill-Work.	Physics.	Technical Drawing.

FOR THE DEGREE OF BACHELOR OF AGRICULTURE.

Freshman Year.

First Term.	Surveying.	Mechanical Laboratory.	Chemistry.
Second Term.	Civil Engineering.	Mechanical Laboratory.	Chemistry.
Third Term.	Roads, Drains, etc.	Mechanical Laboratory.	Chemistry, 2-5. Mineralogy, 3-5.

Sophomore Year.

First Term.	Structural Botany.	Zoology.	Veterinary Anatomy.
Second Term.	Systematic Botany.	Zoology.	Veterinary Anatomy.
Third Term.	Economic Botany.	Zoology.	Veterinary Anatomy.

Junior Year.

First Term.	Soils, Manures, etc.	Geology.	Physiology.
Second Term.	Farm Crops and Tillage.	Geology.	Physiology.
Third Term.	Farm Improvement and Management.	Geology (Economic).	Physiology.

Senior Year.

First Term.	Domestic Animals—Varieties, etc.	Rhetoric.	Diseases of Animals.
Second Term.	Breeding and Feeding Stock.	Rhetoric and Logic.	Principles of Treatment.
Third Term.	Dairy Products.	Logic.	Particular Diseases.

The range of instruction in the several subjects named above is more particularly defined in the following statements of the work provided in the different departments of the University:

DEPARTMENTS AND RANGE OF INSTRUCTION.

MATHEMATICS.

The preparatory department includes Algebra, Geometry, and Plane Trigonometry. In the Freshman Year, the subjects of Analytical Geometry, Differential Calculus, and Integral Calculus are taken up, and an additional term is subsequently given to the applications of Calculus in the Engineering courses.

CIVIL ENGINEERING.

The order of studies in this department can be learned from the schedule which exhibits the course required for the degree of civil engineer.

Text-Books.—The works of Loomis on Algebra, Geometry, and Astronomy. In parts of the course, works by Davies, Warren, Church, Gillespie, Mahan, Haupt, Worthen, and others.

In addition to the use and study of the text-books, the students are taught and practiced in the use of various astronomical and engineering instruments—the level, the transit, the plane-table, the sextant, the globes. They have practical field-work throughout the year, excepting only when the inclemency of the weather does not admit of it. The work consists in taking differences of level, running lines, measuring horizontal and vertical angles, determining the variation of the magnetic needle, finding the latitude by the pole star and by meridian altitudes of the sun; in fine, every variety of appropriate work which can be executed, is regularly, systematically, and thoroughly done.

PHYSICS.

ELEMENTS.

The principles of Physics, or Natural Philosophy, is taught in two terms of the Preparatory Course. A text-book is used as a guide for four exercises each week, one exercise, each week, consisting of lectures illustrated with apparatus.

ADVANCED PHYSICS.

The full course of Advanced Physics occupies two years, embracing three kinds of exercises as follows, first: Graphical and mathematical methods applied; second—lectures on use of instruments, keeping notes, and reduction of observations; and third—personal experimentation in which the student himself uses the apparatus of the laboratory.

FIRST YEAR.

First Term—Graphics and Mathematics applied four-fifths; Experiments one-fifth.
Second Term—Physical Laboratory: Acoustics and Optics.
Third Term—Physical Laboratory: Heat.

SECOND YEAR.

First Term—Physical Laboratory: Heat.
Second Term—Physical Laboratory; Heat and Electricity.
Third Term—Physical Laboratory: Electricity and Magnetism.

In the five terms last named, the student uses the instruments of the laboratory in reviewing the work of others; or in original research. There are also combined with this, lectures on proper manipulation and care in keeping notes as conducive to trustworthy results; also the theory of errors as regards instruments, reduction of observations, etc. The student is enabled to pursue his experiments thoroughly and extensively by means of the apparatus of the department, which includes many rare and valuable instruments.

Works of Reference, Accessible to the Student.—Atkinson's Ganot's Physics, Deschanel's Physics, Kohlrausch's Physical Measurements, Pickering's Physical Manipulations, Stewart's Heat, Jamin's Physique, Clark and Sabine's Electrical Tables and Formulæ, Higgs' Electric Lighting, Schwendler's Electric Testing.

MECHANICAL ENGINEERING.

This course is intended for those who desire to prepare themselves either for the profession of Mechanical Engineering, for superintending the construction of machinery, or for managing machinery in manufacturing establishments. In it instruction in Principles is combined with Practice. The former is mostly given by lectures, while the latter is confined to the Mechanical Laboratory.

The course includes the following special studies, all of which must be passed before taking the degree:

MECHANISM AND DRAWING—ONE YEAR.

Principles of Mechanism.
Machine Designing and Drawing.
Machine Drawing.

PRIME MOVERS AND MACHINERY—ONE YEAR.

Thermodynamics.
Prime Movers.
Machinery and Mill-work.

Besides the above there will be required, for graduating:
Three terms of Elementary Laboratory Practice.
One term of Machine Construction in Laboratory.
One term of Strength of Materials.

EXPLANATION OF THE COURSE.

In the Principles of Mechanism are studied the parts of Machinery by pairs; or, elementary combinations of mechanism. In this the form and arrangement of the parts necessary for securing the desired modification of motion is sought.

In the Machine Designing the student takes up some problem in the shape of a particular machine for a special purpose. The forms, dimensions, and arrangements of the parts are decided upon, and then a drawing is carefully made of the whole. Detail drawings to regulation size are then made, and finished in shade lines, as done in the best shops. The quality of these drawings is sufficient for the requirements of photo-engraving for illustrations upon circulars.

In Thermodynamics are studied the principles which form the groundwork of all heat engines.

In Prime Movers are studied all kinds of heat engines, such as steam, hot-air, etc., and also wind and water-wheels.

Mill-work and machinery takes up valve-gears, fly-wheels, governors, efficiency of parts of machines, strength of parts, etc.

The Mechanical Laboratory is intended for acquainting the student with the materials used in machine construction; with the forms customary in machinery; to impart a degree of skill in the use of tools, and a knowledge of the operations and practices of shops.

The first term consists of the actual use of tools in executing a set of forms chosen, with a view to supplying the greatest possible amount of practical instruction for the time. This is combined with weekly lectures on tools and their use.

The second term carries the above practice to the fitting together of parts, and to the use of machine tools, such as the lathe, planer, etc. This is combined with weekly exercises in designing and drawing of machine elements, such as cranks, bearing boxes, stub-ends, etc.

The third term is fully occupied in fitting parts carefully together, as in the joints of machinery, and in finishing the surfaces by scraping, polishing, burnishing, etc. This is in combination with a weekly exercise in the invention of simple machines for specific operations, such as bending wire staples, cutting wooden combs, etc.

The fourth term of Mechanical Laboratory practice is constructive. It is taken in connection with the principles of mechanism. In the latter, problems in mechanism are worked out, forms and dimensions assigned to the parts, and then these are executed in the Laboratory, resulting in models of mechanical movements for the cabinet.

The legislative grant of last winter, providing for a Mechanical Building and equipment, has very materially added to the means of instruction in the above named subjects. A general description of the building and equipment will be found in the report of the Secretary on a preceding page.

Projects will be assigned to the student, from time to time, on topics connected with his studies, requiring him to take indicator cards, test the efficiency of boilers, visit manufacturing establishments, etc., and report. Such reports should be neatly made out on the regulation papers of the Department. These will be taken, in part, for the examinations, and retained for the cabinet.

Text-Books and Works of Reference.—Rankin's Steam Engine, and Machinery and Mill-work; Weisbach's Mechanics; Willis's Principles of Mechanism; Belanger's Cinematique; Zeuner's Traité de la Chaleur; Neville's Hydraulics; Clausius and McCulloch on Heat; Sellers' Manual of Machine Tools; Shelley's Workshop; Unwin's Elements of Machine Design; Nicholson on Files and Filing.

CHEMISTRY.

All students who wish to obtain a degree are required to study Chemistry for two and two-fifths terms. During this year General Chemistry, together with its most important applications to the arts, is taught by the use of text-books and of lectures, illustrated, by an ever-growing collection of the materials used in manufactures, and by a very complete suite of experiments.

After the completion of this elementary course, those who desire to devote special attention to Chemistry enter the analytical laboratory, where they can carry on their work for two years or more. This laboratory work is *required* only of students in Civil Engineering and in Mining. Any other student may enter the laboratory if his time and his strength permit.

The course in Analytical Chemistry provides full instruction in all departments of the science. In connection with the ordinary work of Qualitative Chemistry, the student is taught the use of the spectroscope, and of the blow-pipe in Determinative Mineralogy. He is also employed in making various compounds, and, if his time permits, studies exhaustively one or more of the elements and its important compounds.

The course of Quantitative Chemistry includes both the gravimetric and volumetric methods. The analyses are at first confined to those compounds whose structure is known, and afterwards extended to such bodies as the student may require in the special branch of the science to which he desires to devote himself. Opportunity is offered for the study of coals, minerals, fertilizers, soils, or of the useful and waste products in manufactures.

If the student desires, he will also be assisted in taking up in detail topics which relate to Agriculture, to Pharmacy, to Medicine, and to other sciences, or to arts in which the principles of chemistry are applied. A full course of assaying is given in the Mining Laboratory, which is open also to students of chemistry.

A summary of the course is given below.

REQUIRED OF ALL CANDIDATES FOR GRADUATION.

GENERAL CHEMISTRY—TWO AND TWO-FIFTHS TERMS.

Inorganic and Organic Chemistry, and the applications of Chemistry to the Arts.

SPECIAL COURSE.

FIRST YEAR.

First Term—Qualitative Analysis: Exercises in Blow-pipe and Flame Reactions, Reactions of Single Bases and Acids.

Second Term—Qualitative Analysis continued: Determination of Mixtures, Blow-pipe Mineralogy, Preparation for Compounds.

Third Term—Quantitative Analysis, Stoichiometry.

SECOND YEAR.

Quantitative Analysis: Special studies in Chemistry applied to Pharmacy, to Agriculture, to Manufactures, and to the Arts.

Text-Books.—Norton's Chemistry, Fowne's Chemistry, Beilstein's Manual, Galloway's Qualitative Chemistry, Will's Analytical Chemistry, Classen's Quantitative Chemistry, Fresenius's Quantitative Chemistry, Caldwell's Agricultural Chemistry.

Books of Reference.—Watt's Dictionary of Chemistry, Handwœrterbuch des Chemie, Gmelin's Hand-Book of Chemistry, Wagner's Chemical Technology, Graham-Otto's Chemie, Rose's Analytischen Chemie, Hoppe-Seyler and Gorup-Besanez's Physiologischen Chemie, Elderhorst's Determinative Mineralogy.

MINING AND METALLURGY.

The course in Mining Engineering secures to the student careful instruction, with ample allowance of time, in the three fundamental branches of the art—mining, preparation of the ore, and its metallurgical treatment. These courses will comprise lectures, the study of text-books, preparation of maps, drawings, and sections, and visits to existing works, with careful reports upon them, and practice in estimates and designs.

For Assaying, there is a full equipment of furnaces and ores for the dry assay, and the wet methods are taught in the chemical laboratory.

An ample collection of minerals is provided, comprising all species with which the mining engineer should be familiar, and to this the students have constant and familiar access.

Crystallography is taught by the aid of a complete collection of large wood models, made especially for the department, and containing every common form.

Text-Books and Books of Reference.—Dana's Mineralogy, Egleston's Crystallographic Tables, Callon's Mining, Andre's Mining and Mining Machinery, Phillips's Metallurgy, Egleston's Metallurgical Tables, Rittenger's Aufbereitung, Gætzschmann's Aufbereitung, Bodemann & Kerl's Assaying, Mitchell's Assaying, Von Cotta's Ore Deposits.

GEOLOGY AND PALEONTOLOGY.

In the preparatory course one term is given to Physical Geograpy. In all of the college courses two terms of General Geology are required, and in two of the engineering courses a third term is added, in which the subject of Economical Geology is taken up. The former subject is provided for in the first and second terms of the Junior year, and the latter in the third term of the same year.

Le Conte's *Elements of Geology* is made the basis of the instruction in the general course; Economical Geology is taught by lectures.

Students desiring to pursue Geology further can elect it as one of their studies throughout the Senior year. In this year, particular attention will be given to the Geology and Paleontology of Ohio, for the illustration of which subjects the museum affords ample materials. These subjects will be taught by lectures, by practical work in the museum, and as far as possible by field practice.

Text-Books and Works of Reference.—Le Conte's Elements of Geology, Dana's Manual of Geology, Lyell's Principles of Geology, Nicholson's Manual of Paleontology, Geological Reports of Ohio and other States.

AGRICULTURE AND BOTANY.

There are three years of work provided for the student in the department of Agriculture. In the first year, Soils are made a subject of examination, their geologic relations and origin are explained, their composition is shown, and how it is determined; the special adaptations of soils to particular crops and modes of culture is shown, and how to increase or restore exhausted fertility; the management of pastures and meadows; the character and value of the different grasses, clovers, and other forage plants; the

culture of field crops, such as corn, wheat, oats, barley, rye, potatoes, etc.; also, the value and application of animal manures, marl, gypsum, wood-ashes, lime, superphosphate, guano, and city sewage.

The work named above occupies the first and second terms. During the remainder of the year the following subjects are treated: Work of the farm and improvements; Drainage, draining-tools, and the manufacture of drain-tiles; Irrigation, its value and methods; Farm Roads, and how to make them; Fences, material, construction, and cost; Rural Architecture, applied to the erection of farm-houses, barns, stables, etc.; Farm Machinery.

The second year is mainly spent on the following topics: The natural history, description, and adaptation of the various domestic animals—horse-training, cattle-feeding, dairy management, wool-growing, etc.

The work of the third year is spent on the general subject of Veterinary Medicine. The range of instruction can be learned from the topics named below: General Principles, Causes, Symptoms, Elements of Disease; Classification of Diseases, Principles of Treatment, and Remedial Agents; Particular Diseases and Operations. These are carefully studied, and, so far as opportunity can be obtained, diseases are treated, and operations made, under the inspection of the class.

In Botany, a term of elementary instruction is provided in the preparatory course. The general facts of vegetable structure and classification are here treated. In the Sophomore Year, part of a term is occupied in a course of lectures on Economical Botany. The above named work is required of all candidates for the general degrees of the University. For students who desire more extended instruction in this subject a course of one year is provided, in which the three subjects named above, viz., Structural, Systematic, and Economical Botany, are treated in more detail. This year's work is elective for any candidate for the general degrees, and is required of students seeking the degree of Bachelor of Agriculture.

ZOOLOGY AND COMPARATIVE ANATOMY.

The work of this department comprises the study of animal life, alike from the anatomical and the physiological aspect. Preparatory students receive, during the first term of their second year, instruction in this department in the elements of human anatomy and physiology. It is the object of this instruction to impart to these students such general knowledge of the structure and functions of their own bodies as will serve as a guide to their maintenance in a state of health and usefulness. Huxley's Lessons in Elementary Physiology will be used as a text-book, accompanied by lectures and by anatomical and histological demonstrations.

All students who are candidates for bachelors' degrees receive instruction in Zoölogy during their Sophomore Year in this department. This instruction will be by lectures, with collateral reading, demonstrations, and such laboratory exercises as the size of the classes from year to year will permit, and will have for its object to impart to the student a clear conception of the animal kingdom as a whole rather than a mere technical familiarity with one of its lesser divisions, to illustrate the objects and methods of classification, to indicate the more important of those morphological relations on which all intelligent classification is based, and to give some insight into those principles which underlie all the phenomena of animal life. All the classes of the animakingdom (as well as the orders of the more important classes) will receive consideral tion, but the larger proportion of the student's attention will be directed to the classes

and orders of the invertebrata, partly because they include those forms least likely otherwise to come under their observation, and partly because a whole year may be afterwards given, by those who wish, to the study of the vertebrates.

At the beginning of the Junior Year, students who are candidates for the degree of Bachelor of Science have open to their election in this department a year of work in the comparative anatomy of vertebrates, that may be antecedent to the special work in palæontology of the department of geology, or to a year of special work in physiology in this department, both of which are elective studies in the senior year. The work in vertebrate anatomy will be chiefly performed in the laboratory and the dissecting room of the department, supplemented by lectures and such collateral reading as may from time to time be indicated.

To such Seniors as have performed the work in anatomy just described, and to no others, the advanced work in physiology and histology already referred to will be open This will include lectures, demonstrations, and laboratory exercises in physiology, accompanied by a course of laboratory training in the facts and methods of histology. Foster's Text-Book of Physiology and Frey's Compendium of Histology will be used as text-books, and Foster and Langley's Practical Physiology and Shäfer's Histology as laboratory manuals.

Students who are candidates for the degree of Bachelor of Agriculture will receive instruction in this department, during their Sophomore Year, in Veterinary Anatomy. The greater portion of this time will be spent in the dissecting room, Chauveau's Anatomy of the Domestic Animals being used as a manual. This will be followed in their junior year by the advanced work in physiology and histology already described.

The various classes of the department will be open to all special students who give satisfactory evidence of their fitness to enter them; and the facilities of the department will be freely afforded to all such who wish to pursue any special line of study connected with it.

DEPARTMENT OF ENGLISH AND MODERN LANGUAGES.

It is no longer a question that a thorough knowledge of the English language and literature as they are, requires a knowledge of them as they were in the several stages of their growth, beginning with the beginning, Anglo-Saxon. The following course is, accordingly, a progressive, historical one:

First Term—Anglo-Saxon (Sweet's Anglo-Saxon Reader).

Second Term—Middle English (Chaucer's Prologue, Knight's Tale, etc., Clarendon Press edition).

Third Term—Modern English—Shakspere (Hamlet, Hudson's edition; Tempest, Clarendon Press edition).

Besides these text-readings, lectures, historical and critical, upon literature, run throughout the year.

Rhetoric and logic belong to this department, and our year is divided about equally between them. Rhetoric, taught for its value both as an aid to original production and to the just criticism and enjoyment of the works of others, runs through the first term and into the second. The remainder of the second term and all of the third are devoted to logic, taught—first, as the foundation and all-controlling, though often hidden, law of all good thinking and writing; second, for its bearing upon the several sciences taught in the University; third, as indispensable in aid of philosophy and a course of philosophical reading; fourth, as a discipline for the mind, than which there is no better.

First Term—Rhetoric: De Mille's Elements.

Second Term—Rhetoric finished; Logic: Jevon's Elements.

Third Term—Logic.

Much of the instruction of this year is oral, either in the shape of formal lectures or daily expansions and illustrations of the text-books. A special course of fifteen lectures on Poetry supplements the text-book on Rhetoric, and from the beginning to the end of the course in Logic, lectures are given, notes of which are taken and recited from.

Books recommended for Reference—Marsh: Lectures on Origin, and History of English Language; Lectures on English Language and Literature; Taine's and Craik's Histories of English Literature; Morris: English Accidence; Grein: Angelsächsische Bibliothek; Earl: Philosophy of the English Tongue; Hamilton's Lectures on Logic; Thomson's Outlines of the Laws of Thought; Mansel's Prolegomena Logica and Edition of Aldrich's Logic; Ueberweg's System der Logik; Quintilian's Institutes, Theremin's Rhetoric; Kames' Elements of Criticism; Hepburn's Manual of Rhetoric.

GERMAN AND FRENCH.

In view of the fact that mental training is a chief aim of every part of a college course; that, for purposes of literary culture, the main thing a college can give is the easy reading and accurate understanding of the masterpieces of the language studied; and that in an institution in which the sciences are so prominent as they are with us, it is of the utmost importance that the ability to use foreign text-books and works of reference be acquired as soon as possible, the so-called "Conversational Method" is not employed, and "learning to speak" French and German is an incident rather than an aim of the course. This is of purpose, and according to the best college usage and authority. I believe, too, that the careful and continuous use of the grammar, lexicon, and well-chosen text, with constant practice in composition, is the only sure and usually the shortest road to accurate and fluent speech. Where small classes, with little else to do, can spend several hours each day with the teacher, a different method will often succeed; but in a college, and to meet the ends of a college, more and better results are secured by the grammatical and literary method. Give the student an accurate knowledge of the inflections and syntax of a foreign language; make him master of a full and idiomatic vocabulary of its words; let the reading of varied and well selected texts teach him the peculiarities alike of the thought and rhythm of the speech of the men whose works he studies; accustom him to the oral and written rendering of the foreign text into English, and of English texts in the foreign speech, and he will no longer be helpless in the presence of a foreign poem or text-book, and learning to speak will be easily learned and remembered.

A two years' course in each of the two languages is provided for. In either course the student attends mainly to grammatical doctrine and literal versions, at first, and to the literary contents and characteristics of what he reads as he progresses. Lectures upon the respective literatures run through the second year of the courses.

GERMAN.

FIRST YEAR.

First and Second Terms—Steiger's Revised Edition of Ahn's Method.

Third Term—Schiller's Der Neffe als Onkel: Composition.

SECOND YEAR.

First Term—Goethe's Egmont; Lessing's Nathan der Weise.
Second Term—Nathan der Weise finished; Richter's Quintus Fixlein.
Third Term—Quintus Fixlein finished.

FRENCH.

FIRST YEAR.

First Term—Duffet: French Grammar and Exercises.
Second Term—Grammar continued; Masson's French Classics, vol. 5.
Third Term—French Classics continued.

SECOND YEAR.

First Term—Moliere: Les Fourberies de Scapin; Racine: Athalie.
Second Term—Corneille: Cinna; Racine: Andromaque; Bridge's History of French Literature.
Third Term—Feuillet: Le Roman dûn jeune homme pavre; Bridge's History continued.
Books of Reference.—For German: Vilmar's Literatur Geschichte; Wackernagel's Geschichte der Deutschen Literatur; Hosmer's Hist. of German Literature; Bayard Taylor's Sketches of German Literature.
For French—Brachet: Grammaire Historique; Chevallet; L'Histoire de la langue Francaise; Vinet: L'Histoire de la Literature, du xviime Siecle; Parton: The French Parnassus; Van Laun: History of French Literature.

LATIN LANGUAGE.

The course in Latin includes two years of preparatory work, and two years of regular college work. The preparatory course is designed for beginners, and those who have had irregular and partial training, and thus can not compete successfully in the college work with those who have been systematically taught in high schools.
The course of study is arranged as follows:

PREPARATORY LATIN.

FIRST YEAR.

First Term—Leighton's Latin Lessons.
Second Term—Leighton's Latin Lessons; Cæsar, *De Bello Gallico*, Book I.
Third Term—Cæsar, *De Bello Gallico*, Books I and II.

SECOND YEAR.

First Term—Vergil's *Æneid*, Books I, II, and III.
Second Term—Vergil's *Æneid*, Book IV; Cicero, *In Catilinam* I, II
Third Term—Cicero *In Catilinam* III, IV; *Pro Archia Poëta.*

COLLEGE COURSE.

FRESHMAN YEAR.

First Term—Livy, Books I and XXI.
Second Term—Cicero, *De Senectute, De Amicitia.*
Third Term—Horace, Odes.

During the year lectures are given on Roman History, and the reading of the authors is accompanied with exercises in Latin prose composition, and in written translation.

SOPHOMORE YEAR.

First Term—Horace; Satires, Epistles, and *Ars Poëtica*.
Second Term—Tacitus, *Germania* and *Agricola*.
Third Term— Plautus, *Captivi*; Terence, *Andria*; Quintilian, *Institutis Oratorica*.

Lectures are given during the year on the Latin language and literature.

Allen and Greenough's grammar is used throughout the entire course.

Candidates for admission to the Freshman class are examined in Latin Grammar (Allen and Greenough's preferred); Latin composition; three books of Cæsar's *De Bello Gallico*; five orations of Cicero, and four books of Virgil's *Æneid*.

GREEK LANGUAGE.

The course in Greek now includes three years of college work, and is arranged as follows:

FRESHMAN YEAR.

First Term—Leighton's Greek Lessons.
Second Term—Greek Lessons completed; Xenophon's *Anabasis*, Book I.
Third Term—Xenophon's *Anabasis*, Books II and III.

SOPHOMORE YEAR.

First Term—Xenophon's *Memorabilia;* Plato's *Phædon*.
Second Term—Herodotus, Selections; Greek History.
Third Term—Euripides, *Alcestis*.
Lectures are given during the year on Greek History, Antiquities, and the Drama.

JUNIOR YEAR.

First Term—Homer's *Odyssey*.
Second Term—Sophocles, *Œdipus Tyrannus*.
Third Term—Demosthenes; *Olynthiacs and Philippics*.

Lectures are given during the year on the Greek language and literature. Exercises in Greek prose composition constitute an important feature of the course. Goodwin's Greek Grammar is used throughout the entire course.

HISTORY AND PHILOSOPHY.

Elementary instruction in United States and General History is afforded in the Preparatory Course. One year of Advanced History is provided. This course is required of candidates for the degree of Ph. B., and is elective for the degree in arts. The subjects which receive attention during the year are: The History of the Middle Ages; The History of Modern Europe, and The Constitutional History and Civil Polity of the United States.

The instruction is by text-books and lectures, to which special work for the class is added. The results of the special study performed by each student are embodied in theses, which are read before the class.

The course in Philosophy extends through one year, embracing Psychology, History of Philosophy, and Ethics. It is required for the degrees in Philosophy and Arts, but

is optional with candidates for the degree of B. S. A knowledge of the laws of thought and moral action is the end toward which the instruction in this course is directed. At the same time the history of Philosophy receives a large share of attention.

The work in these subjects is distributed as follows:

HISTORY.

PREPARATORY COURSE.

First Year.

Second Term—United States History (Eliot).

Third Term—General History (Freeman).

COLLEGE COURSE.

Advanced History.

First Term—The Middle Ages; text-book, Hallam. Lectures, especially on the English Constitution.

Second Term—Modern Europe; text book, C. D. Yonge's Three Centuries of Modern History. Lectures on the present condition of the Great Powers.

Third Term—Constitutional History and Civil Polity of the United States. Lectures.

PHILOSOPHY.

First Term—Principles of Psychology; lectures on the History of Philosophy.

Second Term—Principles of Psychology; lectures on the History of Philosophy.

Third Term—Ethics; lectures on the History of Ethics.

Text-books and works of reference—The histories by Hallam, Sheppard, Sismondi, Gibbon, Martin, Von Sybel, Thiers, Alison, Motley, Dunham, Von Raumer, Von Ranke, Gervinus, Savigny, Bryce, Green, Freeman, Hume, Macaulay, Turner, Stubbs, May, Seeley, Arndt, etc., etc.

Constitutional history of the United States—Curtis's History of the Constitution; Von Holst's Constitutional History of the United States; Frothingham's Rise of the Republic; The Federalist; the works of Adams, Hamilton, Jefferson, Madison, Webster, and Elliot's Debates.

Psychology—Porter, Hamilton, Kant, Carpenter, Spencer, Bain, Maudsley.

History of Philosophy—Schwegler, Ueberweg, Lewes, and Bowen.

Ethics—Bascom, Calderwood, Spencer.

PROVISIONS FOR SPECIAL STUDENTS.

To students entering the University for the purpose of taking some special study, and who do not propose to complete a regular course, *full freedom in the selection of the branches which they will pursue is granted, subject only to the necessary limitation that they are prepared to take up with advantage the studies which they select.* They will enter the classes organized for the regular courses, and they can not be allowed to impair the quality of work done in the classes through their own inadequate preparation. Advanced students will find every facility for special work. The preliminary examinations are required of special students.

PROVISION FOR INSTRUCTION IN AGRICULTURE.

The University recognizes its obligations, imposed in the terms of the grant on which it is founded, to the great industrial interest of agriculture. This obligation it aims to meet in various ways. It fixes its standard of admission so that students may enter its classes from the com non schools. It provides for thorough instruction in the branches of science on which Agriculture depends. It has established a professorship of theoretical and applied Agriculture. It has laid down a special course leading to the degree of Bachelor of Agriculture. It has instituted courses of lectures in the sciences relating to Agriculture, and in theoretical Agriculture, to which the farmers of the State are invited without charge.

While it is believed that the varied and complex questions with which the farmer has to deal, justify and require, for their most successful treatment, the extended and thorough courses of study necessary for the degree of Bachelor of Agriculture, it is still recognized that comparatively few will return from a six years' course of study to the farm again, and, therefore, all possible advantages are offered to young men from the country who enter the institution for a shorter time. The work of the department of Agriculture is shaped so as to give to this class as large a measure of service as possible for whatever time they are on college ground.

LITERARY SOCIETIES.

There are two Literary Societies in the University, the *Alcyone* and the *Horton*. Both are provided with rooms in the University building, the equipment of the Alcyone hall having been mainly furnished through the generosity of the late John G. Deshler, of Columbus. The Societies are vigorous and effective, and furnish to the student a very desirable training in public speaking and parliamentary order.

ADMISSION

For admission to the Preparatory Department of the University, students must possess a competent knowledge of the branches taught in the common schools, viz.: Reading, Orthography, Writing, Grammar, Geography, Arithmetic, and Algebra through simple equations.

The attention of those proposing to enter the University is especially directed to the terms above given. A competent knowledge of the common school branches is required. The University does not undertake to do the work which the common schools are able and willing to do, viz., that of grounding the student in the elements of an English education. He must bring with him a fair measure of the training which these schools are prepared to give. If it be asked what is a competent knowledge of these branches, it may be answered that the candidate should certainly have knowledge enough of them to entitle him to a teacher's certificate from a county board of examiners.

Graduates of the high schools of the State and persons holding teachers' certificates of the twelve months' grade are admitted to the Preparatory Department without examination.

For admission to the College courses, the student must sustain examination in the studies of the Preparatory Course as well as in the common branches above named. The Preparatory Course, as now constituted, agrees very well with the courses of instruction in the better grade of high schools of the State. The full requisitions, then, for admission to college standing are as follows:

English Grammar,
Common School Geography,
Physical Geography,
Arithmetic,
Algebra,
Geometry,
Trigonometry,
Botany,
Physics,
Human Physiology,
United States History,
General History,
Latin or German to the amount of a two years' course.

Students who do not design to complete a regular course of instruction are allowed to select such studies as they are prepared to carry on with profit to themselves and without detriment to the regular classes.

Students are admitted to advanced standing in any of the courses on

their sustaining examination in the work required in the University for such standing.

Students entering from other colleges are required to bring certificates of honorable dismission.

EXPENSES.

1. *College Dues*.—A charge of $5.00 a term, or $15 00 a year, is made against all students, under the head of incidental expenses. *There is no charge for tuition in any department of the University;* but advanced students in Chemistry and Physics are required to pay fees to cover, in part, the cost of materials consumed, and the deterioration of the expensive instruments employed. The fee in the Chemical Laborato y is $10 00 per term, and in the Physical Laboratory $7.00 per term. These dues are required at the opening of each term.

2. *Board.*—There are two dormitories on the College grounds provided for the use of students. The smaller of these provides unfurnished rooms, *rent free*, to such students as desire to board themselves, and thus to reduce their expenses to a minimum. Twenty students can be accommodated in the building, two students being assigned to each room. The expense of living in this way falls below $2.00 per week

The larger dormitory can accommodate seventy students. It is for the present year turned over to the University club, *rent free.* Board, furnished room, fuel, light, and washing are, at present prices, supplied for less than $3 00 per week. New students will not, however, be admitted to the club without special recommendation.

Boarding clubs are also organized in the neighborhood of the College by students, in which expenses are also kept at very low rates.

Board, with furnished rooms, can be obtained in private familes within convenient distances of the College, at rates varying from $3.50 to $5.00 per week.

Free access to the College is secured by two lines of street railroads, which connect it with the central portions of the city.

There is a large amount of work on the College farm that can be performed to advantage by students, and for which they are paid at the current rates for such labor. A number of students defray all their college expenses by such labor. In the assigning of work, preference is given to students in the department of Agriculture and to those who are ready to devote a certain number of hours each day to the tasks required. *The University does not guarantee work to all applicants.*

A college uniform has been adopted with which all students who elect military drill are required to provide themselves. The cost of the uniform is about $20.00.

SUMMARY.

The expenses of a college year of thirty-eight weeks, will include the following items, viz.:

College dues	$15 00		$15 00
Board, room, etc., at $3.50 per week	133 00	at $4 50	171 00
Total	$148 00		$186 00

This estimate provides for light, fuel, and washing, but does not include text-books nor charges for laboratory supplies. Students boarding themselves can reduce the lowest of these estimates by at least $28—making a total of $110.

RULES AND REGULATIONS.

The following rules and regulations, among others, are now in force in the University.

ADMISSION.

1. Candidates for admission to the University must undergo preliminary examinations in the several branches required for admission.

2. Students applying for admission to an advanced class, must be examined on the previous work of the class which they desire to enter.

3. Graduates of High Schools in Ohio, on presenting their diplomas, are admitted to the Preparatory Department of the University without examination. Applicants having a teacher's certificate of twelve months, are also admitted without examination, except in Algebra, in cases where this study is not included in the certificate.

4. A certificate of honorable dismissal is required of students coming from other colleges.

5. The payment of term-bills is required of all students by the second Wednesday of each term, as the condition of remaining in college.

STANDING.

1. The standing of students shall be reported at the end of each term as "passed with merit," "passed," "conditioned," or "failed;" such standing to be determined by examinations, written, wherever possible.

2. The expression "conditioned" signifies "subject to re-examination at the beginning of the following term."

3. No student is allowed to take less than three, or more than four studies; and no student conditioned in any study will be permitted to take more than three studies the following term.

4. Students must pass in at least two of the studies of each term, in order to retain their place in college.

5. Students conditioned in more than one study, must pass a satis-

factory examination in one of these studies before regaining their place in college.

6. Students failing in two of the studies of a term, forfeit their place in college thereby.

7. Students who fail in the term examinations, or in an examination for conditions, are required to take the study or studies in which they fail, on their occurrence, in the following year, except when excused by the faculty.

8. Students failing on a re-examination for a condition, are dropped from that class, if a continuous one.

9. Absence from any examination is construed as a failure therein.

10. Students in any three-term class who fail to attain the grade "passed" at the end of more than one term, shall be required to repeat the work of the whole year, unless excused by the professor in charge; and the students in any two term class who are reported as "failed" at the end of the scond term, may be required by the professor in charge to repeat both terms' work.

DEMERITS.

1. Absence and tardiness may be excused by the President; failures, by the professors in whose classes they occur.

2. Four demerits shall be recorded against a student for every unexcused absence from a class; two for every unexcused failure in recitation, and one for every unexcused tardiness; and other offenses shall be rated as the faculty shall, from time to time, determine.

3. When any student has received ten demerits in any one term, or twenty-five in the first two terms, or thirty in the year, notice thereof shall be sent to the parent or guardian of such student.

4. Any student who receives twenty demerits in any one term, thereby forfeits his connection with the college; and any student receiving thirty-five demerits in the first two terms, or forty in the year, forfeits his connection with the college.

MILITARY DRILL.

1. Students electing Military Drill will be subject to the regulations established by the faculty, for that department, as elsewhere published.

2. Students who do not elect Military Drill are forbidden to loiter on the grounds in the presence of the companies; and whenever the drill takes place within the building, all the rooms and halls used by the companies must be vacated by the other students. The Professor of Military Science and Tactics is required to enforce this order.

CALENDAR.

The Winter term commences on Thursday, January 8, 1880, and continues 12 weeks, closing on Wednesday, March 31.

The Spring term commences on Thursday, April 8, and continues 11 weeks, closing on Wednesday, June 23, (Commencement Day).

The Fall term commences on Thursday, September 16, and continues 14 weeks, closing on Wednesday, December 22.

CATALOGUE OF STUDENTS.

The catalogue that follows includes the names of all students in attendance between November 1st, 1878, and November 1st, 1879. Owing to a recast of the preparatory and college courses, the class standing of the less advanced students has been temporarily affected. It has been deemed best on this account to print, in the present report, the names of the two higher classes only, in a separate list. The names of all other college and preparatory students are printed in alphabetical order—

Name.	Residence.	County.
GRADUATE IN ARTS.		
Noble, Warren F	Tiffin	Seneca.
GRADUATES IN SCIENCE.		
Humphrey, J. Scott	Findlay	Hancock.
McMackin, Amasa B	Newcomerstown	Tuscarawas.
Morrison, Mary Frank	Columbus	Franklin.
Snyder, Henry, Jr	Springfield	Clarke.
Towne, Robert S	Portsmouth	Scioto.
IN POST GRADUATE COURSE.		
Howald, Ferdinand S	Columbus	Franklin.
CERTIFICATE OF PROFICIENCY IN PHYSICS.		
Short, Sidney H	Columbus	Franklin.
CLASS OF 1880.		
Corwin, Edwin E	Columbus	Franklin.
Cunningham, Arthur	Columbus	Franklin.
Gregory, Hiram D	Portsmouth	Scioto.
Jones, J. Paul	Hilliard	Franklin.
McCormick, John H	Columbus	Franklin.
Smith, Florizel	Lithopolis	Fairfield.
Townsbend, Alice M	Avon	Lorain.
Ward, John C	Willoughby	Lake.
CLASS OF 1881.		
Baker, Chauncey B	Columbus	Franklin.
Brown, Christopher N	Ironton	Lawrence.
Cherryholmes, W. K	Millersburg	Holmes.
Hyatt, Edward	Augusta	Carroll.
Jones, Willis S	Big Prairie	Wayne.
McClung, William E	Columbus	Franklin.
O'Brine, David	Worthington	Franklin.
Palmer, Charles O	Cleveland	Cuyahoga.
Pool, Harwood R	New York	
Short, Sidney H	Columbus	Franklin.
Spielman, John A	Tiffin	Seneca.

COLLEGE AND PREPARATORY STUDENTS.

Name.	Residence.	County.
Ackerman, Eli O	Columbus	Franklin.
Ackerman, Fremont	Columbus	Franklin.
Akin, Park H	Columbus	Franklin.
Allen, Charles	Washington C. H	Fayette.
Allen, Frank M	Washington C. H	Fayette.
Allen, Horace	Troy	Miami.
Ambos, Peter	Columbus	Franklin.
Amy, C. S	Paynes Corner's	Trumbull.
Anderson, G. Y	Columbus	Franklin.
Anderson, James T	Columbus	Franklin.
Awl, Florence M	Columbus	Franklin.
Baily, George S	Waynesville	Warren.
Baird, Lida M	Columbus	Franklin.
Baker, Duey H	Columbus	Franklin.
Baker, Wm. V	Thornville	Perry.
Barcus, Flora	Columbus	Franklin.
Barcus, Harry	Columbus	Franklin.
Bates, Josephine M	Irwin	Union.
Beebe, Stacey B	Coshocton	Coshocton.
Beverly, Frank H	Columbus	Franklin.
Bingham, E. T	Columbus	Franklin.
Bohrer, James M	Baltimore	Fairfield.
Bradford, Joseph N	Columbus	Franklin.
Bradford, Samuel	Columbus	Franklin.
Britton, Jennie	Monroe	Butler.
Brooks, Wilson	Columbus	Franklin.
Brossman, Chas. E	Lithopolis	Fairfield.
Brotherton, William	Cedarville	Greene.
Broucher Marcus	Columbus	Franklin.
Brown, William G	West Manchester	Preble.
Bunn, Walter	Chillicothe	Ross.
Burnham, Marion	Rosedale	Madison.
Burnham, W. D	Rosedale	Madison.
Butler, Albert C	Columbus	Franklin.
Campbell, J. R	New Harrisburg	Carroll.
Carey, Samuel	Mt. Vernon	Knox.
Clark, Elmer E	Orrville	Wayne.
Clark, William	Mechanicsburg	Champaign.
Cooke, Paul	Chillicothe	Ross.
Collins, Thomas	Barnesville	Belmont.
Conrad, Maria	Columbus	Franklin.
Coulter, Guy	Columbus	Franklin.
Courtright, Eugene	Lithopolis	Fairfield.
Crane, D. W	Mainville	Warren.
Creighton, W. F	Malvern	Carroll.
Cresap, R. E L	Logan	Hocking.
Crisler, A. Milton	West Manchester	Preble.
Cunningham, Andrew	Columbus	Franklin.
Dahl, Harry B	Washington	Fayette.
Davis, A. E	Basil	Fairfield.
Davis, Floyd	Ithaca, N. Y	
Davis, H. S	Dayton	Montgomery.
Daymude, James A	Marble Cliff	Franklin.
Dick, Harry B	Hopewell P. O	Muskingum.
Dickey, Clayton L	Central College	Franklin.
Deuel, George C	Urbana	Champaign.
Doe, Charles A	Columbus	Franklin.
Donaldson, Eli G	Columbus	Franklin.
Donham, Wm. W	Lindale	Clermont.
Downerd, Edward C	Zanesville	Muskingum.
Dun, George	Dublin	Franklin.
Dun, John	Dublin	Franklin.

COLLEGE AND PREPARATORY STUDENTS.—Continued.

Name.	Residence.	County.
Dyer, David N	Galena	Delaware.
Earl, Thomas M	Columbus	Franklin.
Eastman, J C	West Alexandria	Preble.
Ehler, Frederic	West Alexandria	Preble.
Ely, William A	Elyria	Lorain.
Evans, W. H	Columbus	Franklin.
Falconer, Cyrus, Jr	Gore	Hocking.
Fassig, Oliver L	Columbus	Franklin.
Fay, F. Willis	Columbus	Franklin.
Felch, W. Farrand	Columbus	Franklin.
Field, Sarah J	Columbus	Franklin.
Firestone, Nettie	Middle Branch	Stark.
Fischer, E. R	Columbus	Franklin.
Fisher, Dudley	Columbus	Franklin.
Fisher, David A	Kenton	Hardin.
Fitch, Eliza	Columbus	Franklin.
Foster, Jesse K	Brookville	Montgomery.
Foster, N. P	Sharonville	Pike.
Fox, Herman S	Brookville	Montgomery.
Francisco, Bond	Columbus	Franklin.
Fullington, C P	Irwin	Union.
Galbraith, John H	Columbus	Franklin.
Gibson, Mary	Elyria	Lorain.
Gill, Maggie H	Hilliard	Franklin.
Glover, Libbie	Hilliard	Franklin.
Glover, Sioux	Hilliard	Franklin.
Good, A. S	Winchester	Franklin.
Graham, Dora	Clarksburg	Ross.
Graham, Rebecca	Clarksburg	Ross.
Greene, Harry N	Atwater	Portage.
Green, Clarence C	Middleport	Meigs.
Griffin, Theodore L	Columbus	Franklin.
Guainans, Emile F	Mont Céliard, France	
Haerlin, Herman	Cincinnati	Hamilton.
Hamilton, C. S	Columbus	Franklin.
Hanitch, Louis	Dayton	Montgomery.
Hanley, R. J	Columbus	Franklin.
Harrison, Wm. H	Columbus	Franklin.
Harsh, Lewis M	Commercial Point	Pickaway.
Hart, Elmer	Columbus	Franklin.
Hay, John H	Coshocton	Coshocton.
Hayes, Alvin C	Burgh Hill	Trumbull.
Hawley, Will E	Conneaut	Ashtabula.
Hershey Benj. E	Union	Montgomery.
Higbee, Charles E	Cleveland	Cuyahoga.
Hine, Adaline	Milan	Erie.
Hine, L. A	Milan	Erie.
Hinman, Charles D	Columbus	Franklin.
Hinman, Ella	Columbus	Franklin.
Hosher, J. C	Logan	Hocking.
Hosue, Wm. D	Columbus	Franklin.
Housel, William D	Middle Branch	Stark.
Houston, W. A	Marysville	Union.
Houston, Margaret E	Cannonsburg, Pa	
Howard, Charles J	Barnesville	Belmont.
Howard, Mary E	Westerville	Franklin.
Hubbard, Frederick	Columbus	Franklin.
Hubbard, H. M	Columbus	Franklin.
Hughes, John W	Columbus	Franklin.
Hull, Alice	Columbus	Franklin.
Hnston, Joseph E	West Alexandria	Preble.
Hutchinson, Mary	Columbus	Franklin.
Hyatt, Harry	Augusta	Carroll.

COLLEGE AND PREPARATORY STUDENTS—Continued.

Name.	Residence.	County.
Innis, Adam G	Columbus	Franklin.
Innis, Isabella	Columbus	Franklin.
Innis, Louvina	Columbus	Franklin.
Innis, Sarah G	Columbus	Franklin.
Jones, James P	Big Prairie	Wayne.
Jones, Jenette	Hilliard	Franklin.
Keffer, Frederick	Cleveland	Cuyahoga.
Kenney, Melvin P	Isle St. George	Ottawa.
Kenny, Minerva	Columbus	Franklin.
Keyes, Frank E	Columbus	Franklin.
Keyser, I. N	Columbiana	Columbiana.
Kienzle, Frank	Columbus	Franklin.
King, David C	Medina	Medina.
Knopf, George	Columbus	Franklin.
Lakin, Milton C	Marble Cliff	Franklin.
Lane, Benj. F	Ironton	Lawrence.
Lane, Louis	Mt. Vernon	Knox.
Langfitt, Wm. C	Millersburg	Holmes.
Law, George W	Willoughby	Lake.
Le Moyne, Madeleine R	Chicago, Ills	
Le Moyne, Mary	Chicago, Ills	
Lewis, Charles M	Circleville	Pickaway.
Lewis, Harry J	West Lafayette	Coshocton.
Leonhard, L. C	Dayton	Montgomery.
Lovejoy, Ellis	Columbus	Franklin.
Lovejoy, Jesse R	Columbus	Franklin.
Lucas, Mary E	West Jefferson	Madison.
Martin, Harry	Mt. Vernon	Knox.
Martin, Walter H	Columbus	Franklin.
Marvin, Eva	Columbus	Franklin.
Marvin, Frederick	Columbus	Franklin.
Mathew, Katherine H	Columbus	Franklin.
McCoy, Homer W	South Point	Lawrence.
McDannald, C. E	Central College	Franklin.
McDonald, Edgar	Coshocton	Coshocton.
McElroy, T. C	Columbus	Franklin.
McFarlin, W. K	Coitsville	Mahoning.
McDowell, John A	Columbus	Franklin.
McEwen, J. H	Wellsville, N. Y	
Merion, Charles	Columbus	Franklin.
Miller, C. C	Baltimore	Fairfield.
Miller, C. E	Middletown	Butler.
Miller, Walter M	Columbus	Franklin.
Miller, W. H	McArthur	Vinton.
Milligan, J. P	Rushville	Fairfield.
Mix, Melvin N	Avenue	Franklin.
Moore, Harry C	Columbus	Franklin.
Morris, W. D	Terre Haute, Ind	
Morse, E. L	Kingsville	Ashtabula.
Morton, G. L	South Newberg	Geauga.
Morton, James W	Mt. Ephraim	Noble.
Mosher, George C	Findlay	Hancock.
Mosher, G. E	Chillicothe	Ross.
Myers, Noah	North Hampton	Clarke.
Newlove, W. J	Columbus	Franklin.
Nichols, J. W	Morristown	Belmont.
Oberlin, M. W	Middle Branch	Stark.
O'Brine, David	Worthington	Franklin.
Orton, Clara G	Columbus	Franklin.
Orton, Edward, Jr	Columbus	Franklin.
Packard, William D	Warren	Trumbull.
Paine, William D	Hamden Junction	Vinton.
Parker, William	Columbus	Franklin.

COLLEGE AND PREPARATORY STUDENTS—Continued.

Name.	Residence.	County.
Perfect, Willis	Sunbury	Delaware.
Peters, William L	Columbus	Franklin.
Pheneger, Parker W	Columbus	Franklin.
Pleukharp, Charles	Columbus	Franklin.
Pool, Harwood R	New York	
Ramsay, William E	Delta	Fulton.
Ray, W. D	Harrisonville	Scioto.
Reed, William F	Pomeroy	Meigs.
Reilly, Jennie O	Marysville	Union.
Renick, Seymour	Palestine	Pickaway.
Robinson, Parl C	Kenton	Hardin.
Rodgers, James L	Columbus	Franklin.
Rohr, Etta F	Canal Winchester	Franklin.
Rohrer, Albert L	Farmersville	Montgomery.
Root, W. J	Leon	Ashtabula.
Royce, Walter A	Columbus	Franklin.
Sabine, Annie W	Richwood	Union.
Safford, Vinton P	Chillicothe	Ross.
Sawyier, D. W. C., Jr	Columbus	Franklin.
Sawyier, Reuben A	Columbus	Franklin.
Schoonover, Mollie	Kenton	Hardin.
Scott, Mary O	Columbus	Franklin.
Scurry, James R	Columbus	Franklin.
Seeds, Effie G	Columbus	Franklin.
Selby, A. D	Bartlett	Washington.
Sharp, Zula M	Clintonville	Franklin.
Shedd, Frederic	Columbus	Franklin.
Shuler, D. Van	Lockport, N. Y	
Sinift, Orin V	Rushville	Fairfield.
Sinks, Clinton P	Columbus	Franklin.
Slusser, Sarah A	Louisville	Stark.
Smith, Guy	Elyria	Lorain.
Smith, Lot L., Jr	Columbus	Franklin.
Smith, Philo C	Canton	Stark.
Smith, W. A	Ada	Hardin.
Smith, W. P	Chillicothe	Ross.
Sperr, F. W	Jefferson	Ashtabula.
Spurgeon, Amelia M	Clintonville	Franklin.
Stevens, C. J	Kenton	Hardin.
Stimmel, J. Turner	Columbus	Franklin.
Sullivan, Charles	Columbus	Franklin.
Tarbell, D. S	Georgetown	Brown.
Tarbox, Theodore	Cedarville	Greene.
Taylor, Edmond J	Columbus	Franklin.
Taylor, Frank	Columbus	Franklin.
Terry, Harry K	Columbus	Franklin.
Thrailkill, George H	Shadeville	Franklin.
Thurston, Azor	Grand Rapids	Wood.
Touvelle, W. E	Celina	Mercer.
Uhler, Harry L	Marion	Marion.
Vanderburg, C. R	Columbus	Franklin.
Van Harlingen, E. M	Columbus	Franklin.
Veith, Veit	Columbus	Franklin.
Waddell, Frederic J	Racine	Meigs.
Wade, Julia F	Columbus	Franklin.
Wade, William	Columbus	Franklin.
Ward, Lemuel N	Panola, Illinois	
Warner, Cora	Chillicothe	Ross.
Welch, J. J	Ironton	Lawrence.
Wellons, James W	Barnesville	Belmont.
Westfall, Lafayette	Covington	Miami.
Whaley, Charles	Pomeroy	Meigs.

COLLEGE AND PREPARATORY STUDENTS—Continued.

Name.	Residence.	County.
Whitten, William	Columbus	Franklin.
Wikoff, John B	Columbus	Franklin.
Wilcox, James B	Columbus	Franklin.
Wilfing, C. J	Greenville	Darke.
Wilgus, Horace L	Conover	Miami.
Wilgus, Lewis F	Conover	Miami.
Wilkinson, E. W	Columbus	Franklin.
Willard, C. P	Columbus	Franklin.
Williams, Harley	Columbus	Franklin.
Wilson, Josiah D	Clarksburg, W. Va	
Wilson, Stonewall Jackson	Clarksburg, W. Va	
Wing, C. M	Newark	Licking.
Wirth, Herman	Columbus	Franklin.
Wood, J. G	Columbus	Franklin.
Wood, K. D	Columbus	Franklin.
Wright, Charles H	Athens	Athens.
Young, Willis E	Richwood	Union.
Zuniga, Manuel	Guadalajaro, Mexico	

TREASURER'S REPORT.

COLUMBUS, OHIO, *Nov.* 14, 1879.

Hon. T. J. GODFREY, *Chairman of the Board of Trustees of the Ohio State University:*

DEAR SIR: I have the pleasure to hand you herewith my ninth annual report of the financial transactions of the Ohio State University for the fiscal year closing the 15th inst. This report embraces, among other things,

I. A general cash statement, showing the receipts, expenditures and balances of cash.

II. The cash transactions incident to the sale of the Virginia Military Lands from 1871 to date.

III. A statement showing the condition of the endowment fund held by the State of Ohio, and pledged to the support and maintenance of the Ohio State University.

IV. A full statement of the cash received from whatever source into the treasurer's hands.

V. A detailed account of the disbursements made during the year.

All of which are respectfully submitted.

HENRY S. BABBITT, *Treasurer.*

STATEMENT I.

A General Statement of Cash Accounts for the Fiscal Year ending November 15, 1879.

Henry S. Babbitt, *Treasurer, in account with the Ohio State University:*

Dr.

Nov. 16, 1878.	To balance of cash on hand			$1,982 29
	To cash from various sources, viz:			
	From State treasury on account of the income of the Endowment Fund, balance due, accrued in 1878	$13,775 81		
	On account of $32,842 due from same source in 1879	16,421 00		
			$30,196 81	
	From students' term bills:			
	Winter term, 1878-9	$1,083 00		
	Spring term, 1879	1,246 00		
	Fall term, 1879	1,205 50		
			3,534 50	
	From rent of houses:			
	President Orton	$350 00		
	Professor Townshend	300 00		
	Professor Mathew	199 97		
			849 97	
	From proceeds of notes received for sale of Virginia Military lands	$2,301 73		
	From interest on such notes	510 87		
	For Virginia Military land sales	2,467 40		
			5,280 00	
	From miscellaneous sources, to wit:			
	Attorney-General, collections on subscription for location of College	$311 00		
	Professor Norton, materials sold students	165 85		
	Professor Robinson, materials paid for by students	10 95		
	C. E Thorne, farmer, coal sold	8 25		
	Thompson & Dowdall, insurance policy cancelled	24 00		
	Franklin National Bank, interest on deposits in full	12 84		
			532 89	
	Total receipts during the year			40,394 17
	Total receipts, including above balance			$42,376 46

CONTRA, CR.

Nov. 15, 1879.	By expenditures as follows (see the detailed statement for items.)		
	For support and maintenance of the University, viz:		
	Salaries of faculty, teachers, and other officials.	$25,267 50	
	Expenses of trustees	898 15	
	Fire insurance	461 00	
	Other current expenses	2,795 65	
			$29,422 30
	For furniture and apparatus not included in department supplies		457 77
	For library		677 22
	For farm expenses	$695 77	
	For improvements	1,623 79	
	For repairs	966 63	
			3,286 19
	For University band		100 00
	For department supplies		2,318 20
	For expenses Virginia Military lands		1,127 86
	Total disbursements for the year		$37,389 54
	Balance of cash on hand		4,986 92

STATEMENT II.

VIRGINIA MILITARY LAND SALES.

The cash receipts into the treasury from the proceeds of the sales of these lands, as reported to November 15, 1878, were		$18,859 37
Receipts during fiscal year 1879		5,280 00
Total receipts to November 15, 1879		$24,139 37
Total expenses on this account to November 15, 1878, as per report for last year	$10,938 23	
Expenses in 1879	1,127 86	
Total expenses to November 15, 1879		12,066 09
Balance, showing net receipts to date		$12,073 28

STATEMENT III.

SHOWING THE AMOUNT OF THE OHIO STATE UNIVERSITY ENDOWMENT FUND, COMPUTED IN ACCORDANCE WITH THE PROVISIONS OF THE ACT PASSED FEBRUARY 10, 1871. (O. L., vol. 67, page 15.)

Amount of fund as principal, January 1, 1879		$506,031 14
Add six months' interest on same to July 1, 1879, at 6 per cent. per annum	$15,180 93	
Add interest on $34,500 of Franklin County Agricultural bonds to March 15, 1879	$1,207 50	
Add interest on last amount to July 1, 1879	21 13	
	1,228 63	
Total additions first half year		16,409 56
Making		$522,440 70

From which sum is to be deducted payments made by the State from income of the fund since last report, as follows:								
Nov. 27, 1878—	$2,000.00,	with interest to	July 1, 1879,	7 mos.	3 days	$71 00		
Dec. 17, 1878—	3,000.00	"	"	6 "	13 "	96 50		
Feb. 22, 1879—	3,000.00	"	"	4 "	8 "	64 00		
Mar. 14, 1879—	3,000.00	"	"	3 "	16 "	53 00		
Mar. 28, 1879—	2,775.81	"	"	3 "	2 "	42 46		
June 2, 1879—	3,000.00	"	"		28 "	14 00		
June 16, 1879—	3,000.00	"	"		14 "	7 00		
	$19,775.81					$347 96		
Total deductions first half year								$20,123 77
Leaving amount of new principal July 1, 1879								$502,316 93
Add interest on that sum to January 1, 1880							$15,069 51	
Add interest on Franklin county bonds as above, coupons falling due September 15, 1879*						$1,067 50		
And interest on last amount to Jan. 1, 1880						18 68		
							1,086 18	
Total additions second half year								16,155 69
Making								$518,472 62
From which is to be deducted the following payments:								
Aug. 25, 1879—	$3,000,	with interest to	Jan. 1, 1880,	4 mos.	5 days	$62 50		
Oct. 20, 1879—	1,421	"	"	3 "	10 "	23 68		
Nov. 5, 1879—	3,000	"	"	1 mo.	25 "	27 50		
Nov. 12, 1879—	3,000	"	"	1 "	18 "	24 00		
	$10,421					$137 68		
Total deduction second half year								10,558 68
Leaving amount of fund derived from proceeds of sale of land scrip and accumulations thereto till January 1, 1880								$507,913 94
Upon this sum interest at the rate of six per cent. per annum, compounded semi-annually, is payable, under the provisions of the act passed May 1, 1878 (O. L., vol. 75, page 126), to the Ohio State University. Besides this, a deposit made with the Treasurer of State by the Trustees of the Ohio Agricultural and Mechanical College, complying with provisions of an act passed January 20, 1871, of the seven per cent. bonds of Franklin county, amounts to*								34,500 00
Making an aggregate fund, held in trust by the State for the University, of								$542,413 94
Interest upon the above sums, computed upon the same terms, for 1880, will amount to								32,890 00

* Four thousand dollars of the Franklin county bonds matured March 15, 1879, and ten thousand dollars September 15, 1879, but for some reason no adequate provision was made by the county commissioners for their redemption. The interest for September 15 is therefore short the sum of $140.00. The remainder of the bonds mature next year, to wit: ten thousand dollars on March 15, 1880, and ten thousand five hundred dollars on September 15, 1880. The treasurer of the county, P. W. Corzilius, Esq., informs me that interest will be paid in full to the date of the final redemption of the bonds. After the bonds are paid in full, the proceeds will remain in the State Treasury, and constitute a part of the irreducible debt to the University.

Requisitions were made and warrants were issued upon the State Treasury during the fiscal year 1879, as above shown, to the amount of	$30,196 81
This sum includes a portion of the interest accrued and subject to draft in 1878, but not drawn until after the close of the fiscal year 1878, amounting to	13,775 81
Making the amount received by the Treasurer of the University upon the appropriation of $32,842, for interest on the irreducible debt of the State in 1879, one-half the amount due, or	$16,421 00
And leaving still subject to draft, if required by the Universty, and if drawn out prior to January 1, 1880, the further sum of	16,421 00
	$32,842 00

The act of February 10, 1870, requires the calculations of interest to be made by semi-annual rests, on the first of January and July of each year, but the fiscal year of the State and of the University ends on the 15th of November, and the accounts are all settled at that date. It is held by the Attorney-General that the balances of appropriations undrawn on the first of January and July annually, revert to the parent fund, as part of the principal, which can not be diminished except by special legislation.

APPROPRIATIONS.

The following appropriations and authorized expenditures of the funds of the University have been made by the Board of Trustees for the fiscal year 1879:

Nov. 9, 1878—	The income of the Endowment Fund, so called, for the support and maintenance of the University, viz.			$32,842 00
" "	For teaching assistance			400 00
" "	Materials for dissecting in the Zoological Department			40 00
" "	Pathological Cabinet			125 00
" "	Supplies for Chemical Laboratory			100 00
Jan. 7, 1879—	Supplies for Physical and Mechanical Laboratory			50 00
" "	Musical instruments			50 00
" 9, "	Supplies for Chemical Department			200 00
" "	Farm Committee's use			500 00
Apl. 15, "	Assistant teachers, 3d term			30 00
" "	Books, etc., by President Orton			35 00
" "	Supplies for Mechanical Department			20 00
June 16, "	Student helps—Latin and Greek	$225		
	Physics	200		
	Zoölogy	125		
	Geology	150		
				700 00

June 16, 1879–Supplies for Library		$100	
	Mining Department	150	
	Drawing "	50	
	Zoölogical "	75	
			375 00
" 18, "	University band		50 00
" "	High street improvement		400 00

The unexpended balances of former appropriations have been cancelled by resolution of the Board.

STATEMENT IV.

SHOWING IN DETAIL THE CASH RECEIPTS FROM ALL SOURCES DURING THE YEAR ENDING NOVEMBER 15, 1879, BY HENRY S. BABBITT, TREASURER.

Date.	From whom received, and on what account.	Amount.
1878.		
Nov. 16	Balance of cash on hand	$1,982 29
27	State Treasury, income of endowment	2,000 00
Dec. 13	Professor Mathew, house rent	16 66
13	C. A. Barton, Agent of Ohio State University, Virginia Military land sales	85 90
13	J. M. King, Virginia Military land note, $10; interest, $1.15	11 15
16	State Treasury, income of endowment	3,000 00
16	C. A. Barton, Agent, Virginia Military land sales	1,688 00
19	G. W. Hackworth, Virginia Military land note, $200; interest, $10.	210 00
31	President Orton, house rent	70 00
31	same laboratory fees received	7 00
1879.		
Jan. 18	C. A. Barton, Agent, Virginia Military land sales	180 65
18	S. A. Hoffer, Virginia Military land note	25 00
18	A. M. King, " " " " $50; interest, $2.90	52 90
18	Professor Mathew, house rent	16 66
18	Students' term bills	1,021 00
19	Franklin National Bank, interest on deposits, in full	12 84
20	W. P. Hazen, Virginia Military land notes, $310; interest, $33.58	343 58
27	W. H. Taylor, Virginia Military land note, $39; interest, $2.24	41 24
Feb. 22	Professor Mathew, house rent	16 66
22	Students' term bills	55 00
22	State Treasury, income of endowment	3,000 00
Mar. 4	J. F. Miles, Virginia Military land notes, $90.75; interest, $0.95	91 70
14	F. Whitten, on account of Virginia Military land note	10 00
15	State Treasury, income of endowment	3,000 00
15	R. P. L. Baber, for Attorney General, net proceeds of collection on account of Samuel Doyle's subscription to the location of the College	311 00
15	Professor Mathew, house rent	16 67
25	President Orton, "	105 00
25	E. Simpson, Virginia Military land, interest	12 18
28	State Treasury, income of endowment	2,775 81
April 5	Students' term bills	92 00
5	Professor Mathew, house rent	16 66
5	J. F. Miller, Virginia land, interest	12 50
12	Students' term bills	883 00
May 12	Professor Mathew, house rent	16 67
12	Students' term bills	180 00
12	M. Hart, Virginia Military land, interest	8 80
12	Professor Robinson, damages in laboratory	7 45

STATEMENT IV.—Continued.

Date.	From whom received, and on what account.	Amount.
1879.		
June 2	State Treasury, income of endowment	$3,000 00
14	Asenath Watson, Virginia Military land note and interest	235 68
14	J. F. Miles, three Virginia land notes, $43.08; interest, $1.22	44 30
14	Professor Mathew, house rent	33 32
18	State Treasury, income of endowment	3,000 00
30	Students' term bills	91 00
30	President Orton, house rent	105 00
30	C. A. Barton, Agent, Virginia Military land sales	479 10
30	Cuppett & Webb, on account, Virginia Military land notes	100 00
30	J. F. Miles, three Virginia Military land notes, $137.64; interest, $4 27	141 91
30	G. W. Hopper, Virginia Military land note	10 00
30	W. S Hall, Virginia Military land note, $26; interest, $7.90	33 90
30	J. B. M'Grew, Virginia Military land note	3 75
July 2	Prof. S A. Norton, apparatus sold	165 85
2	Professor Townshend, house rent, one year	300 00
2	J. Lawhorn, Virginia Military land note, $34; interest, $3 65	37 65
10	C. E. Thorne, coal sold	8 25
16	W. J. Easter, Virginia Military land note, $38.40; interest, $2 30	40 70
Aug. 14	Anthony Welch, Virginia Military land note, $63 40; interest, $3.37	66 77
21	J. F. Miles, three Virginia Military land notes, $25.62; interest, $0.93	26 55
21	J. F. Miles, three Virginia Military land notes, $34.05; interest, $1.25	35 30
21	J. W. Davis, Virginia Military land note, $30; interest, $5.85	35 85
21	B. M Renoe, Virginia Military land notes, $26.60; interest, $1 75	28 35
21	D. Baumgardner, Virginia Military land note	20 00
21	S A Hoffer, Virginia Military land note, $5.00; interest, $2 95	7 95
25	State Treasury, income of endowment	3,000 00
28	Thompson & Dowdall, insurance policy canceled	24 00
28	A. Welch, Virginia Military land note, $63.43; interest, $3.97	67 40
28	J. F. Miller, on account of Virginia Military land note	27 00
Sept. 8	M P. Thompson, Virginia Military note, $50; interest, $2.90	52 90
13	E. A. Legg, on account of Virginia Military land note	40 00
15	David Evans, Virginia Military land note, $16.00; interest, $0.92	16 92
27	Professor Mathew, house rent	50 00
Oct. 8	Andrew Behene, Jr., Virginia Military land note, $101 82; interest, $18 03	149 85
8	Thomas Brown, Virginia Military land note, $20; interest, $1.20	21 20
20	Bettie Allen, Virginia Military land sale	33 75
20	C. A. Barton, Virginia Military land note	50 00
20	J. G Freeman, balance on Virginia Military land note	17 00
20	same interest on Virginia Military land notes	16 42
20	State Treasury, income of endowment	1,421 00
21	Cuppett & Webb, balance on Virginia Military land notes	337 15
21	same interest in full on Virginia Military land notes	239 35
21	W. M. Stephenson, Virginia Military land note, $4; interest, $0 25	4 25
Nov. 5	State Treasury, income of endowment	3,000 00
6	Students' term bills	1,205 50
6	Professor Robinson, received for damages	3 50
6	Samuel W. Brown, Virginia Military land note, $10; interest, $0.60	10 60
7	Mary J. Reed, Virginia Military land note, $8.21; interest, $11.79	20 00
7	John Liston, Virginia Military land notes, $21.25; interest, $33.60	54 85
7	Professor Mathew, house rent	16 67
14	State Treasury, income of endowment	3,000 00
14	President Orton, house rent	70 00
	Total receipts during fiscal year 1879, including balance of $1,982.29 on hand November 16, 1878	$42,376 46
	Total disbursements for same period (see following statement in detail)	37,38 54
	Balance of cash on hand November 15, 1879	$4,986 92

STATEMENT V.

A Detailed account of Disbursements, by Henry S. Babbitt, Treasurer, during the Fiscal Year ending Nov. 15, 1879.

Date.	No. of order.	To whom paid.	For what purpose.	From what appropriation.	Amount.
1878					
Nov. 16	1	Sidney A. Norton	Hardware, etc	Current expenses	$35 80
16	2	same	Apparatus and chemicals	Department supplies	301 81
16	3	Patrick Fitzsimmons	Hauling	Current expenses	1 50
16	4	L. D. Hagerty	Ohio Short Horn Record	Library	2 64
18	5	Hoermle & Hohn	Three models with pulleys	Department supplies	55 00
18	6	J. H. Anderson & Co	Two Short Horn cattle	Farm expenses	130 82
18	7	same	Letter-heads and envelopes	Current expenses	55 00
18	8	same	Expenses attending cattle sale, etc	Farm expenses	6 00
18	9	same	Glazing boarding house	Repairs	6 25
21	10	Halm, Bellows & Butler	Two tables and blocks	Department supplies	123 00
22	11	Columbus Transfer Co	Drayage on boxes	Current expenses	2 11
27	12	President Edward Orton	Salary for November	Salaries	275 00
27	13	Prof. Sidney A Norton	"	"	225 00
27	14	Prof. Joseph Millikin	"	"	225 00
27	15	Prof. N. S. Townshend	"	"	225 00
27	16	Prof. R. W. McFarland	"	"	225 00
27	17	Prof Albert H. Tuttle	"	"	225 00
27	18	Prof. John A. Church	"	"	225 00
27	19	Prof. Josiah R. Smith	"	"	150 00
27	20	Prof. Thomas Mathew	"	"	85 00
27	24	Prof. Luigi Lomia	"	"	50 00
27	22	Miss Alice Williams	"	"	55 00
27	23	Prof. S. W. Robinson	"	"	225 00
27	24	T. J. Godfrey	Expenses as trustee	Current expenses	15 80
29	25	James B. Jamison	"	"	17 45
30	26	N. S. Townshend	"Flora of Brazil"	Library	32 40
Dec. 2	27	J. T. Harris	Ventilators, etc	Apparatus	190 00
5	28	Andrew Schwarz	Plumbing work	Repairs	9 25
5	29	M. Dillon	Salary as janitor	Salaries	60 00
7	30	Columbus Transfer Co	Freight on chemicals	Current expenses	4 05
7	31	Thomas Mathew	Drawing materials	Department supplies	32 00
7	32	S. W. Robinson	Painting models	"	6 75

Dec.	10	33	Isaac B. Potts	Heating apparatus	Repairs	17	73
	12	34	Edward Orton	Library books	Library	101	76
	12	35	same	Sundries	Current expenses	26	64
	13	36	L. G. Thrall & Son	Printing and binding stationery	"	27	75
	17	37	John A. Church	Salary for December	Salaries	225	00
	17	38	Joseph Millikin	"	"	225	00
	14	39	Columbus Transfer Co	Drayage	Current expenses		75
	14	40	W. A. Shoemaker	Coal	"	174	49
	17	41	Edward Orton	Salary for December	Salaries	275	00
	17	42	Sidney A. Norton	"	"	225	00
	17	43	N. S. Townshend	"	"	225	00
	17	44	R. W. McFarland	"	"	225	00
	17	45	A. H. Tuttle	"	"	225	00
	17	46	Luigi Lomia	Salary to January 1	"	100	00
	17	47	S. W. Robinson	" for December	"	225	00
	17	48	J. R. Smith	" "	"	150	00
	17	49	Thomas Mathew	" "	"	85	00
	17	50	Alice Williams	" "	"	55	00
	17	51	M. Dillon	" "	"	60	00
	17	52	Adams Express Co	Express on notes	Virginia Military land	3	70
	17	53	Miss M. F. Morrison	Salary as assistant librarian	Salaries	25	00
	17	54	Arthur Cunningham	Assistant in classical department	"	100	00
	17	55	S. B. Beebe	" mathematical department	"	50	00
	17	56	Sidney H. Short	Services in phy. laboratory	"	25	00
	17	57	Nat. W. Lord	Salary December and half of November	"	75	00
	17	58	Vincent, Sturm & Barston	Secretary's desk	Current expenses	95	25
	17	59	H. Snyder, H. McCoy, and H. B Dahl	Laboratory, fees refunded	"	30	00
	24	60	S. E Samuel	Chemicals	"	10	00
	24	61	Field & Fletcher	Driving well, and fixtures	Improvement	53	14
	24	62	J. Keely	Plastering	Repairs	20	75
	26	63	Vincent, Sturm & Barston	Freight on desk	Current expenses	1	32
	26	64	S. H. Short	Phy. laboratory supplies	Department supplies	14	97
	28	65	George W. Weiuman	Repairs to pump	Repairs	30	00
18'9							
Jan.	7	66	Kilbourne, Jones & Co	Hardware	"	18	60
	8	67	Chas. A. Barton	Salary and expenses	Virginia Military land	267	10
	8	68	Royce & Pulling	Repairs to dumb waiter	Repairs	4	25
	9	69	A. D. Rodgers, P. M	Postage	Current expenses	43	96
	8	70	Comly & Francisco	Printing cards	"	1	50
	10	71	Alston Ellis	Expenses of attending meeting of B'd	"	20	75
	10	72	T. J. Godfrey	" " "	"	22	60
	10	73	T. Ewing Miller	Use of chariot for Finance committee	"	5	00

Date.	No. of order.	To whom paid.	For what purpose.	From what appropriation.	Amount
1879					
Jan. 10	74	Stephen Johnston	Expenses as trustee	Current expenses	$12 00
11	75	Ralph Leete	Legal services, and exp's in attending Cooper & McKinny suits	Virginia Military land	172 30
11	76	Wm. H. Leete	Legal services	" "	125 00
11	77	H. S. Babbitt	Salary	Salaries	50 00
11	78	John A. Church	Books for library	Library	57 26
13	79	S. E. Samuel	Alcohol	Current expenses	9 69
14	80	James B. Jamison	Expenses as trustee	"	29 00
14	81	S. H. Ellis	" "	"	14 60
14	82	same	" "	"	27 85
15	83	same	Farm appropriation	Farm expenses	350 00
17	84	Wassall Fire Clay Co	Repairing gas retorts, etc	Repairs	8 15
18	85	Columbus Transfer Co	Freight on cartridges and stone	Contingent expenses	7 86
20	86	John O'Neil	Four days' work	"	5 00
20	87	Geo. W. Dunn	Musical instruments	Special expenses	50 00
22	88	J. S. Doe	Coal	Contingent expenses	60 10
22	89	Attlesey Lithographing Printing Works.	Printing letter-heads and envelopes	"	18 00
22	90	Edward Orton	Salary for January	Salaries	275 00
23	91	L. G. Thrall & Son	Printing and binding bill-heads	Current expenses	6 50
23	92	Cott & Hann	Printing letter-heads and book labels.	"	5 50
25	93	Albert Allen	Salary as secretary	Salaries	100 00
25	94	Albert H. Tuttle	" for January	"	225 00
28	95	Sidney A. Norton	" "	"	225 00
28	96	Joseph Millikin	" "	"	225 00
28	97	R. W. McFarland	" "	"	225 00
28	98	Norton S. Townshend	" "	"	225 00
28	99	Luigi Lomia	" "	"	50 00
28	100	S. W. Robinson	" "	"	225 00
28	101	John A. Church	" "	"	225 00
28	102	Josiah R. Smith	" "	"	150 00
28	103	Thomas Mathew	" "	"	85 00
28	104	Alice Williams	" "	"	55 00
29	105	M. Dillon	" "	"	60 00
30	106	N. W. Lord	" "	"	50 00

Feb.	4	107	T. J. Godfrey	Necessary expenses	Current expenses	15	75
	4	108	Stephen Johnston	"	"	9	00
	5	109	A. Ward	Coal	"	238	84
Jan.	7	110	P. Hess	Conveyance of Legislative committee	"	10	00
Feb.	6	111	William Halley	Plumbing repairs	Repairs	48	90
	7	112	Henry McElwin	Blackboard repairs	"	25	00
	8	113	Ohio Furniture Company	Cases and table	Departments	39	00
	10	114	Hope Machine Works	Repairing machinery	Repairs	6	20
	11	115	Comly, Francisco & Co	Paper to cover report	Current expenses	5	60
	14	116	James B. Jamison	Expenses as Trustee	"	15	55
	15	117	Board of Trustees	Expenses in visiting Illinois	"	309	00
	18	118	Leader Printing Co	125 copies of "Leader"	"	3	75
	20	119	George H. Twiss	Galvanic battery	Departments	40	00
	20	120	N. H. Edgerton	Philosophical instruments	"	4	92
	28	121	Edward Orton	Salary for February	Salaries	275	00
	28	122	Sidney A. Norton	"	"	225	00
	28	123	Joseph Millikin	"	"	225	00
	28	124	Norton S. Townshend	"	"	225	00
	28	125	R. W. McFarland	"	"	225	00
	28	126	Albert H. Tuttle	"	"	225	00
	28	127	Luigi Lomia	"	"	50	00
	28	128	S. W. Robinson	"	"	225	00
	28	129	John A. Church	"	"	235	00
	28	130	Josiah R Smith	"	"	150	00
	28	131	Thomas Mathew	"	"	85	00
	28	132	Alice Williams	"	"	55	00
	28	133	N. W. Lord	"	"	50	00
	28	134	M. Dillon	"	"	60	00
March	4	135	Edward Orton	Sundries	Current expenses	37	40
	4	136	same	Department supplies	Department supplies	4	95
	4	137	H. L. Shepherd	Binding reports, etc	Current expenses	7	50
	4	138	Aston & Huff	Repairing stoves	Repairs	16	75
	4	139	Miller, Green & Joyce	Supplies for military	Departments	17	88
	7	140	Hope Machine Company	Work on castings	Repairs	8	40
	8	141	Thomas Vaughn	Drayage and expressage	Current expenses	6	40
	8	142	Thomas Mathew	Crayons, etc., for drawing department	Departments	15	00
	8	153	A. H. Tuttle	Supplies for dissecting room	"	14	15
	8	144	Joseph Dixon	1,500 brick for repairs	Repairs	6	75
	11	145	Edward Orton	Barrel of blue vitriol	Departments	25	06
	11	146	Chas. E. Thorne	Farm expenses	Farm	150	00
	11	147	T. Longstreth	Coal	Current expenses	18	00
	12	148	J. S. Doe & Co	Coal	"	205	00

DETAILED STATEMENT OF PAYMENTS MADE, ETC.—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	From what appropriation.	Amount.
1879.					
March 12	149	H. T. Chittenden	Carpenter work	Repairs	$4 37
15	150	Aston & Huff	Ventilating pipes	Apparatus	23 20
15	151	John A. Spielman	Guarding building	Current expenses	9 00
20	152	William Taylor	Cement, etc	Repairs	6 61
19	153	John A. Church	Salary for March	Salaries	225 00
20	154	James B. Jamison	Expenses as Trustee	Current expenses	13 50
21	155	Edward Orton	Salary for March	Salaries	275 00
22	156	Isaac Eberly	Barrel of vitriol	Current expenses	9 00
26	157	Sidney A. Norton	Salary for March	Salaries	225 00
26	158	Joseph Millikin	"	"	225 00
27	159	Norton S. Townshend	"	"	225 00
27	160	R. W. McFarland	"	"	225 00
26	161	Albert H. Tuttle	"	"	225 00
25	162	Luigi Lomia	"	"	100 00
25	163	S. W. Robinson	"	"	225 00
26	164	J. R. Smith	"	"	150 00
27	165	Thomas Mathew	"	"	85 00
27	166	Alice Williams	"	"	55 00
1	167	N. W. Lord	"	"	50 00
April 7	168	M. Dillon	"	"	60 00
March 24	169	Edward Fleming	Work on cistern	Repairs	5 00
24	170	Edward Hughes	"	"	31 50
25	171	Mary F. Morrison	Salary as librarian	Salaries	37 50
25	172	Edward Orton	For assistant teachers	"	235 00
26	173	Thomas Vaughn	Freight and drayage	Current expenses	2 70
28	174	W. A. Gill	Insurance policy	"	30 00
29	175	James B. Jamison	Expenses as Trustee	"	12 00
April 4	176	Hayden & Baker	Castings, etc., for Mechanical dep't	Departments	13 88
4	177	Scioto Boiler Works	Repairs	Repairs	14 50
4	178	John A Church	Books	Library	113 47
4	179	same	Mining department supplies	Deparment supplies	28 53
5	180	Geo. M. Maris & Co	Hardware	Repairs	19 28
5	181	Isaac B. Potts	Brass work	"	17 66
10	182	Columbus Transfer Co	Freight and drayage	Current expenses	3 11

12	183	A. H. Tuttle	Material for dissection	Departments	6	70
12	184	Sidney A. Norton	Chemical supplies	Department supplies	120	74
16	185	S. H. Ellis	Expenses as Trustee	Current expenses	22	60
17	186	T. J. Godfrey	"	"	40	50
18	187	Stephen Johnston	"	"	14	75
19	188	Eureka Fire Hose Co	Cotton fire hose	Apparatus	244	57
23	189	L. G. Thrall & Co	Receipts for Prof. McFarland	Current expenses	9	50
23	190	Albert Allen	Salary as Secretary	Salaries	100	00
30	191	Edward Orton	Salary for April	"	275	00
30	192	Sidney A. Norton	"	"	225	00
30	193	Joseph Millikin	"	"	225	00
30	194	N. S. Townshend	"	"	225	00
30	195	R. W. McFarland	"	"	225	00
30	196	Albert H. Tuttle	"	"	225	00
30	197	Luigi Lomia	"	"	50	00
30	198	S. W. Robinson	"	"	225	00
30	199	John A. Church	"	"	225	00
30	200	J. R. Smith	"	"	150	00
30	201	Thos. Mathew	"	"	85	00
30	202	Alice Williams	"	"	55	00
30	203	Nat. W. Lord	"	"	50	00
30	204	M. Dillon	"	"	60	00
30	205	R. W. McFarland	Services as bursar	"	25	00
30	206	H Bancroft	Insurance premium	Current expenses	57	00
May 1	207	Thos. Vaughn	Freight	"	6	15
2	208	Nevins & Myers	Programmes of lectures	"	15	00
6	209	Mrs. Thos. McDonald	5 days' work	"	11	75
6	210	Hoermle & Hohn	Steel pinion	Department supplies	3	50
7	211	John Kelly	Repairing smoke stack	Repairs	12	15
7	212	Mrs. Ed. Hughes	" arches for boiler	"	18	80
8	213	J. M. & W. Westwater	Jars, pipes, etc	Department supplies	47	25
8	214	A. H. Tuttle	Section cutter	" "	20	40
8	215	S. A. Norton	Chemicals and apparatus	" "	71	03
9	216	E. B. Armstrong	Repairs of roof	Repairs	6	50
10	217	Andrew Schwarz	Plumbing	"	47	26
10	218	John A. Church	Books	Library	25	90
23	219	Halm, Bellows & Butler	Desk	Department supplies	45	0
24	220	Nevins & Myers	Stationery, etc	Current expenses	41	9
24	221	Albert Tuttle	Salary for May	Salaries	225	0
26	222	Thompson & Dowdall	Premium on insurance	Current expenses	35	0
28	223	Edward Orton	Salary for May	Salaries	275	0
28	224	Sidney A. Norton	"	"	225	0

Date.	No. of order.	To whom paid.	For what purpose.	From what appropriation.	Amount.
1879.					
May 28	225	Joseph Millikin	Salary for May	Salaries	$225 00
28	226	Norton S. Townshend	"	"	225 00
28	227	R. W. McFarland	"	"	225 00
28	228	Luigi Lomia	"	"	50 00
28	229	S. W. Robinson	"	"	225 00
28	230	John A. Church	"	"	225 00
28	231	Josiah R. Smith	"	"	150 00
28	232	Thomas Mathew	"	"	85 00
28	233	Alice Williams	"	"	55 00
28	234	N. W. Lord	"	"	50 00
28	235	M. Dillon	"	"	60 00
29	236	Miss M. F. Morrison	Salary to end of June	"	37 50
June 4	237	Stephen Johnston	Expenses as trustee	Current expenses	10 25
5	238	Thomas J. Godfrey	" "	"	17 40
6	239	J. S. Doe & Co	Coal	"	48 20
6	240	G. W. Weinman	Repairs to steam-pump	Repairs	60 15
6	241	John A. Church	Mining department supplies	Department supplies	19 90
7	242	William Halley	Plumbing work	Repairs	23 77
7	243	A. H. Tuttle	Zoological specimens	Department supplies	28 25
7	244	Edward Orton	Stationery and sundries	Current expenses	60 25
7	245	same	Assistant teachers	Salaries	165 00
July 1	246	Kilbourne, Jones & Co	Hardware	Department supplies	30 89
June 10	247	S. E. Samuel	Supplies for mechanical department	" "	36 85
11	248	Hershiser & Gibson	Lumber	Repairs	42 86
11	249	Geo. M. Maris & Co	Nails and lead	"	2 05
11	250	H. W. Derby & Co	Books	Library	15 09
July 10	251	R. G. Hanford	Trees	Farm	10 00
June 12	252	G. W. Gleason	Books	Library	29 75
23	253	F. G. Powell	Chariot hire	Current expenses	5 00
July 16	254	Lewis & Godman	Hinges and screws	Repairs	1 34
June 14	255	N. S. Townshend	Books, etc	Library	259 62
17	256	Edward Orton	Salary for June	Salaries	275 00
17	257	Sidney A. Norton	"	"	225 00
17	258	Joseph Millikin	"	"	225 00

17	259	N. S. Townshend	Salary for June	Salaries	225 00
17	260	R. W. McFarland	"	"	225 00
17	261	A. H. Tuttle	"	"	225 00
17	262	Luigi Lomia	"	"	100 00
17	263	S. W. Robinson	"	"	225 00
17	264	J. A. Church	"	"	225 00
17	265	J. R. Smith	"	"	150 00
17	266	Thomas Mathew	"	"	85 00
17	267	Alice Williams	"	"	55 00
17	268	N. W. Lord	"	"	50 00
17	269	M. Dillon	"	"	60 00
13	270	T. Vaughn	Freight and drayage	Current expenses	2 73
14	271	Albert Allen	Salary as Secretary	Salaries	130 00
14	272	L. G. Thrall	Stationery	Current expenses	4 50
14	273	N. S. Townshend	Cistern	Improvement	50 00
18	274	C. A. Barton	Salary as land agent to June 1st	Virginia Military lands	544 76
19	275	Columbus Post-Office	Postage	Current expenses	5 12
19	276	S. H. Ellis	Expenses as trustee and carriage hire	"	37 45
19	277	Stephen Johnston	" "	"	11 25
19	278	James B. Jamison	" "	"	22 00
19	279	T. J. Godfrey	" "	"	17 50
19	280	S. H. Short	Instructor in Physics	Salaries	35 00
19	281	C. E. Thorne	Care University grounds	Current expenses	81 44
20	282	Cancelled			
23	283	Albert Allen	Salary as Secretary	Salaries	30 00
4	284	S. A. Norton	Chemicals	Department supplies	93 36
27	285	Chas. L. Sullivan	Repairs	Repairs	12 90
28	286	E. R. P. Baker	" etc	"	7 00
28	287	Cancelled			
28	288	C. E. Thorne	Freight on retorts	Current expenses	4 50
28	289	Edward Orton	Two retorts and diplomas	"	116 00
July 2	290	Albert Allen	Salary as Secretary	Salaries	100 00
2	291	Thomas Mathew	Repairs on dwelling house	Repairs	15 00
2	292	same	Supplies for department	Department supplies	14 39
2	293	Isaac B Potts	Pipes	Improvement	21 97
2	294	Frederick Schmidt	Painting models	Department supplies	1 75
2	295	J. H. Anderson	Expenses as trustee	Current expenses	2 00
3	296	R. A Sawyier	Cleaning and packing guns	"	5 50
5	297	Edward Orton	Mechanical department supplies	Department supplies	10 65
7	298	Cott & Hann	Printing proposals	Current expenses	2 00
8	299	James Greenwood & Sons	Rent of lathe six months	"	20 00
8	300	C. E. Thorne	Cistern and gate-keeping	"	41 55

Date.	No. of order.	To whom paid.	For what purpose.	From what appropriation.	Amount.
1879.					
July 9	301	Andrew Schwarz	Plumbing	Repairs	$3 50
10	302	John Little, late Attorney-General	Fees on $1,642.37, col'ct's of former y'rs	Current expenses	49 27
10	303	John R. Billings	Expenses taking deposition	Virginia Military land	15 00
10	304	H. S. Babbitt	Salary to July 1st and expenses	Sal., $200; curr't exp., $10.50	210 50
19	305	R. W. McFarland	Expenses	"	12 00
19	306	Stephen Johnson	Expenses as Trustee	"	7 75
19	307	S. H. Ellis	" "	"	14 70
19	308	James B. Jamison	" "	"	12 00
23	309	M. Dillon	Salary for July	Salaries	60 00
23	310	Edward Orton	Postage, etc	Current expenses	26 50
23	311	same	Advertising	"	71 00
24	312	A. K. Woodward	Carpenter work	"	6 90
31	313	T. Vaughn	Drayage	"	1 91
Aug. 5	314	Nevins & Myers	Circulars, etc	"	10 15
5	315	same	Miscellaneous printing	"	43 40
5	316	Joseph Herman	Painting	Repairs	57 25
11	317	Comly, Francisco & Co	Advertising commencement	Current expenses	3 75
11	318	Geo. M. Maris & Co	Hardware, etc	Improvement	40 30
12	319	Chas. Nagle	Plastering	Repairs	22 00
15	320	McCune, Mithoff & Co	Lard oil, etc	Current expenses	19 31
16	321	Halm, Bellows & Butler	Chemical desks	Department supplies	120 00
16	322	Fred Wiegold	Painting black-boards	Repairs	14 40
16	323	Albert Allen	Salary as Secretary, etc	Salaries	125 00
16	324	Stephen Johnson	Expenses as Trustees	Current expenses	7 25
16	325	Thomas Sargent & Son	Carpenter work	Improvement	113 00
11	326	Andrew Schwarz	Plumbing	Repairs	65 42
19	327	John A. Church	Minerals for mining department	Department supplies	65 20
21	328	Abbott, Montgomery & Stoner	Paint and hardware	Repairs	28 46
21	329	T. Vaughn	Freight and drayage	Current expenses	4 64
25	330	John Doyle	Digging and walling well, etc	Improvement	107 00
25	331	A. Carlisle	Lumber	"	81 51
25	332	Strobridge & Co	Engravings for diplomas	Current expenses	56 00
28	333	Albert Allen	Salary as Secretary	Salaries	50 00
29	334	J. S. Doe & Co	Coal	Current expenses	16 35

Sept.	24	335	O. A. B. Senter	Paper trays	Current expenses	7 00
Aug.	30	336	Isaac B. Potts	Plumbers' supplies	Repairs	13 21
Sept.	11	337	Kershaw, Krauss & Putnam	Laying carpet	Current expenses	1 00
Aug.	29	338	Home Insurance Co	Insurance on houses	"	19 00
	30	339	Thompson & Dowdall	Insurance on Col. b'dings and cont'ts	"	50 00
Sept.	8	340	Wm. B. Potts	Repairs and painting roof	Repairs	87 80
	8	341	M. Dillon	Salary for August	Salaries	60 00
	8	342	Martin Krauss & Co	Brick, and work on well	Improvement	59 50
	9	343	Andrew Schwarz	Plumbing	Repairs, $14.30; departm't, $71.	85 30
	10	344	Crane Bros. Manufacturing Co	Steam fittings	Repairs	39 06
	11	345	Edward Orton	Putting buildings in order	Current expenses	100 00
	12	346	Braun & Bruck	Green vitriol	"	1 50
	23	347	Edward Orton	Salary for September	Salaries	275 00
	23	348	Sidney A. Norton	" "	"	225 00
	23	349	Joseph Millikin	" "	"	225 00
	23	350	Norton S. Townshend	" "	"	225 00
	23	351	R. W. McFarland	" "	"	225 00
	23	352	A. H. Tuttle	" "	"	225 00
	23	353	Luigi Lomia	" "	"	60 00
	23	354	S. W. Robinson	" "	"	225 00
	23	355	Nat W Lord	" "	"	120 00
	23	356	Josiah R. Smith	" "	"	150 00
	23	357	Thomas Mathew	" "	"	85 00
	23	358	Alice Williams	" "	"	55 00
	23	359	Miss S. Glover	" "	"	12 50
	23	360	M. Dillon	" "	"	60 00
Oct.	6	361	Wassall Fire Clay Co	Pipes and elbows	Current expenses	2 04
	6	362	Cott & Hann	One hundred postal cards, printed	"	1 75
Sept.	30	363	A. D. Rodgers, Postmaster	Postage, President Orton	"	10 00
Oct.	6	364	Patrick Bresnahan	Soap, brooms, etc	"	23 43
Sept.	16	365	G. M. Maris & Co	Door knob, etc	"	65
	16	366	Thomas Vaughn	Freights	"	20 90
	18	367	T. J. Godfrey	Expenses as Trustee	"	15 70
	18	368	Hon. Stephen Johnston	" "	"	8 25
	23	369	John T. Short	Salary for September	Salaries	150 00
	30	370	Albert Allen	Salary as Secretary, etc	"	120 00
	30	371	Asa Gray	"Flora Braziliensis"	Library	16 55
Oct.	2	372	S. H. Ellis	Expenses as Trustee	Current expenses	22 10
	3	373	Alston Ellis	"	"	2 50
	3	374	James B. Jamison	"	"	26 00
	4	375	Hersniser & Gibson	Lumber	Repairs	4 30
	6	376	L. G. Thrall & Co	Printing and binding two order books	Current expenses	8 75

DETAILED STATEMENT OF PAYMENTS MADE, ETC.—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	From what appropriation.	Amount.
1879.					
Oct. 9	377	A. S. W. Huffman	Pump	Improvement	$16 65
8	378	Thomas McDonald	Paving boiler house, etc	"	84 40
13	379	Patrick Bresnahan	Seventeen days' labor	"	21 25
18	380	A. H. Tuttle	Histological preparations	Department supplies	21 00
18	381	Luigi Lomia	Musical instruments	Special	50 00
18	382	G. W. Weinman	Steam pump, etc	Improvement	89 00
20	383	H. Bancroft	Insurance on buildings and contents	Current expenses	75 00
20	384	Wm. A. Gill, agent	" " "	"	25 00
20	385	Gardner & Byers	Insurance on building and contents	"	70 00
20	386	Zelotes Wood	" " "	"	25 00
20	387	Thompson & Dowdall	" " "	"	75 00
20	388	Thos. J. Driskell & Co	New boiler, and repairs on old	Improvement	876 67
27	389	James B. Jamison	Expenses as Trustee, etc	Current expenses	42 85
27	390	C. E. Thorne	Expenses, in charge of Jersey cattle	Farm	23 70
27	391	Albert Allen	Traveling expenses (buying Jerseys)	"	25 25
27	392	Thomas Vaughn	Freight and drayage	Current expenses	25 07
27	393	Lewis Fink	Kalsomining room	Repairs	20 00
28	394	Edward Orton	Salary for October	Salaries	275 00
28	395	S. A. Norton	" "	"	225 00
28	396	Joseph Millikin	" "	"	225 00
28	397	N. S. Townshend	" "	"	225 00
28	398	R. W. McFarland	" "	"	225 00
28	399	A. H. Tuttle	" "	"	225 00
28	400	Luigi Lomia	" "	"	60 00
28	401	N. W. Lord	" "	Salaries	120 00
28	402	S. W. Robinson	" "	"	225 00
28	403	J. R. Smith	" "	"	150 00
28	404	John T. Short	" "	"	150 00
28	405	Thos. Mathew	" "	"	85 00
28	406	Alice Williams	" "	"	55 00
28	407	M. Dillon	" "	"	60 00
28	408	P. Hayden & Son	Castings	Departments	30 98
30	409	Andrew Schwarz	Ball cock and ball, and die	Repairs	6 25
31	410	Geo. M. Maris & Co	Glass, etc	"	5 90

Nov.	1	411	Halm, Bellows & Butler	Desk improvement	Departments	2 00
	1	412	Sidney A. Norton	For desks in Laboratory	Department repairs	59 86
	1	413	Thos. Mathew	Supplies for Department	" "	34 38
	1	414	Aston & Huff	Ventilating pipe	Improvements	11 40
	1	415	C. E. Thorne	Cost in court	Current expenses	10 00
	5	416	Stephen Johnston	Expenses as trustee	" "	7 00
	6	417	A. H. Smythe	Stationery	" "	12 26
	6	418	Geo. W. Gleason	"	" "	9 42
	6	419	I. B. Potts	Repairing street pipes	Departments	46 16
	6	420	Stitt, Price & Co	Lime for gas	Current expenses	6 00
	7	421	Albert Allen	Salary as secretary, etc.	Salaries	110 00
	7	422	Henry S. Babbitt	Salary as treasurer, etc	"	150 00
	8	423	Sidney A. Norton	Chemical supplies	Department supplies	577 16
	10	424	C. E. Thorne	Care of University grounds	Current	132 09
	10	425	Halm, Bellows & Butler	Desk for Prof. Short	Departments	10 00
	11	426	Edward Orton	Books	Library	22 78
	11	427		Canceled ,(See No. 345)		
	11	428	Edward Orton	Miscellaneous expenses	Current	50 02
	12	429	Lyonsdale Coal Co	Coal to date	"	378 52
			Total disbursements			$37,389 54

Total receipts, as shown by statements I and IV	$42,376 46
Total disbursements, as above	37,389 54
Cash balance on hand	$4,986 92

HENRY S. BABBITT, *Treasurer.*

REPORT OF THE FINANCE COMMITTEE.

COLUMBUS, OHIO, *November* 14, 1879.

The accounts and vouchers of the treasurer have been examined and compared with those shown by the Secretary's record and found to be correct. An examination shows that the balance reported by the Treasurer is on deposit in the National Exchange Bank, and subject to his order. The report of the Treasurer is correct in every particular, and its acceptance is hereby recommended.

ALSTON ELLIS,
STEPHEN JOHNSTON,
Finance Committee Ohio State University.

FARM DEPARTMENT.

REPORT OF FARM COMMITTEE.

HON. T. J. GODFREY, *President Board of Trustees of Ohio State University:*

SIR: Your Committee, known as the "Farm Committee," beg leave to make the following report:

You placed in our hands the disbursements of the Legislative appropriations for "river improvement" and "farm improvement and stock."

As to the river improvement, we found that the work to be done, so as to make it permanent, required the expenditure of a greater sum of money than was at first supposed. The purchase of land, court costs, construction of dams and levees, digging of new channel, etc., required an outlay of $2,434.80. Vouchers covering this amount may be found on file in the Auditor's office. The Legislature appropriated $1,500 for this purpose, and, to meet the remainder of this expense, warrants were drawn upon the appropriation for "farm improvements and stock" account for $934.80, which it is hoped the Legislature will reimburse to that fund, so much needed for other farm improvements and stock.

Of the appropriation for farm improvements and stock, amounting to $3,000, the following expenditures have been made, viz:

For six Jersey cows and one calf	$923 50
For High street improvement	122 54
Advanced on river improvement	934 80
For fruit trees, etc	414 46
Total	$2,395 30

Leaving an unexpended balance undrawn of this fund of $604.70.

As to the conducting of the various farm operations, we have found that we must necessarily intrust much to the judgment of the Farm Superintendent. For a fuller account of the farm operations, cost of production, etc., we refer you to the report of the Farm Superintendent, which is herewith submitted.

S. H. ELLIS,
JAS. B. JAMISON,
J. H. ANDERSON,
Committee.

REPORT OF FARM MANAGER.

S. H. ELLIS, ESQ., *Chairman Farm Committee Ohio State University:*

DEAR SIR: I have the honor to submit the following report of the operations of the farm department for the year ending November 1, 1879:

The beginning of the year found our hogs suffering from the disease known as hog cholera, from which seven large hogs and twenty-four pigs died, making a loss to the farm, including the injury to the remainder of the herd, of not less than two hundred dollars. The means resorted to for checking the disease have been discussed at length by Dr. Townshend in the report of the Secretary of State for 1878, and need not be referred to here further than to state that symptoms of the disease made their appearance again during October, when the hyposulphate of soda was immediately resorted to, and at present writing the hogs seem to have entirely recovered. It is probable that the attack was, in this case, a very light one.

During April, May, and June, we suffered from a protracted drouth, which shortened our crop of hay to about one-fourth the usual yield, and seriously injured our pastures.

Wheat was an excellent crop. Oats very poor, and corn but medium, owing to the difficulty of securing a stand in the spring, from the seed having been injured by the severe winter, and to the spring drouth. A second long-continued drouth has severely injured the fall pasturage and the growing wheat crop.

The following summary gives the acreage, cost of production, yield, and value of the principal crops grown on the farm during the year:

Kind of Crop.	Acres.	Cost per acre.	Yield per acre.		Profit per acre.	Total crop.	
			Amount.	Value.		Amount.	Value.
Hay	40	$1 35	¾ tons.	$8 00	$6 65	26¾ tons.	$320 00
Wheat	44	10 78	30½ bush.	36 42	25 64	1346 bush	1,602 71
Oats	8½	4 34	30 "	11 00	6 66	255 "	93 50
Rye	6	5 42	25 "	15 50	10 08	150 "	93 00
Corn	53½	8 43	55 "	21 35	12 82	2900 "	1,118 00
Pasture	62	.....	.....	5 64	5 64	.....	350 00
Minor crops	14	13 16	.....	18 04	4 88	.....	252 56
Totals	228	.....	.....	.....	.....	.....	$3,829 77

NOTE.—In the above estimates, the wheat crop is charged with $1.09 per acre for manure and expense of application; the corn crop with $2 26 per acre for the same object. The meadows are credited with $2.00 per acre for pasturage of aftermath; the wheat and oats with $2.00, and the rye with $3.00 per acre for value of straw, and the corn with $2.10 per acre for value of fodder. The yield of the pastures is estimated from the increase in weight of the stock cattle, and from a charge of $1.50 per head per month for the dairy cows and horses pastured upon them.

STUDENT LABOR.

During the year twelve hundred and fifty dollars have been paid to students of the University for labor upon the farm, and it is due to the young men who gave this service to say that in nearly all cases their duties have been faithfully performed. The dairy department is entirely under their care, and by their good management they have increased the sale of milk from an average of fifty-three dollars per month for the first quarter of the year, to one hundred and seven dollars per month for the last quarter.

FARM IMPROVEMENTS.

The following permanent improvements have been made upon the farm during the year:

(*A*) *Drains.*

(1) The system of drain in field No. 1 has been extended southward a distance of twenty-six rods, involving an expenditure for tile of $5.90 and for labor of $9 00—total, $14.90.

(2) A drain, seventeen rods long, has been made in field No. 7, to cut off a spring which was oozing from the foot of the bluff in that field, and injuring the land below, at a cost in labor of $1.95 and in tile of $4.59—total, $6.54.

(3) A system of drains has been made in the east end of field No. 9 (since planted with fruit trees), comprising a total length of 228 rods, 144 rods of which were of three and four-inch drain, and 84 rods were of six-inch outlet. This improvement cost—in tile, $74.41 and in labor, $72 05—total, $146.46.

(*B*) *The Planting of an Orchard.*

For reasons of farm convenience the eastern part of field No. 9, lying between the barns and the main college building, was set apart for this purpose. The land was first thoroughly drained, then manured and double plowed to the depth of twelve inches, and planted with apples, standard and dwarf pears, cherries, plums, quinces, and grapes, with small fruits between the cherries and apples. On the north and west sides a double belt of Norway spruce was planted, which was continued on the south side in a series of groups. The outlay for this improvement, in addition to purchase of stock, has been as follows:

For freight and stock	$20 00
For manuring and preparing land	85 41
For planting and care	83 60
Total	$189 01

(C) Minor Improvements.

Numerous other improvements have been made, including the starting of a plantation of Catalpas and Black Locusts; the refitting of the horse stables; the removal of stumps, stones, etc., from the fields; the rebuilding of the bridge upon the lawn, and the replacing of old rail fences with posts and boards—the total cost of which has been $164.76, including $63.33 for material and $101.43 for labor.

In addition to the above sums, labor to the amount of $49.20 has been expended in the construction of improvements which are not yet completed.

RECEIPTS AND EXPENDITURES.

The following statements show the receipts and expenditures of the department for the year:

STATEMENT "A."

RECEIPTS FROM FARM PRODUCE FOR THE YEAR ENDING OCTOBER 31, 1879.

Received for	1 bull and 8 steers	$550 30	
"	134¾ tons of hay	924 84	
"	20¾ tons of straw	94 15	
"	1,044 bushels of corn	308 83	
"	84½ bushels of oats	17 82	
"	865⅝ bushels of wheat marketed	885 46	
"	358½ bushels of seed wheat	465 85	
"	35 bushels of rye	18 25	
"	18,938 quarts of milk	957 53	
"	28 hogs and pigs	203 30	
"	23 dead hogs and pigs (sold to soap-makers)	12 91	
"	feed and pasture	143 36	
"	garden produce and potatoes	122 36	
"	102 cords of wood	18 35	
"	walnut wood and lumber	162 45	
"	labor for other departments and outside parties	356 81	
"	rents and miscellaneous sales	166 70	
"	impounding stock	18 00	
Total receipts from sale of stock			$5,421 27

STATEMENT "B."

EXPENDITURES ON FARM ACCOUNT FOR THE YEAR ENDING OCTOBER 31, 1879.

Paid for labor employed		$2,384 21
for pressing 99 tons hay and straw		298 44
for purchase of feed		182 18
for other incidental expenses (including threshing of grain, smith work, and all repairs, purchase of seeds, manure, etc)		591 77
for superintendence of farm work		550 00
Total expenditure for current expenses		$4,006 60
Balance, surplus		1,414 67
Total		$5,421 27

STATEMENT "C."

RECEIPTS AND EXPENDITURES ON ACCOUNT OF PERMANENT IMPROVEMENT AND FARM EXPERIMENTS, FOR THE YEAR ENDING OCTOBER 31, 1879.

Receipts.

Cash on hand Nov. 1, 1878	$101 70
Received from University funds, per Farm Committee	500 00
from surplus from farming operations	1,414 67
Total receipts for above named purposes	$2,016 37

Expenditures.

Paid for labor employed in permanent improvements	$402 64	
for material used in permanent improvements	311 20	
for live stock added to inventory	471 15	
for implements added to inventory	306 41	
for labor employed in experimental work	45 00	
for incidental expenses of experimental work	15 88	
for superintendence of experimental work	50 00	
Total expenditures for improvements and expenses		$1,602 28
Balance cash on hand and accounts due		$414 09

The foregoing is respectfully submitted.

C. E. THORNE, *Farm Manager.*

RECORD OF PROCEEDINGS

OF THE BOARD OF TRUSTEES OF OHIO STATE UNIVERSITY.

COLUMBUS, OHIO, *November* 29, 1878.

Board met at 2½ o'clock P.M., Messrs. Miller, Anderson, Godfrey and Jamison present.

The minutes of the previous meeting were amended and approved.

Mr. Erasmus Tucker and J. F. Miles appeared before the Board and submitted the following proposition:

We, the undersigned, do hereby agree to purchase of the Board of Trustees of the Ohio State University, all lands belonging to said University in Scioto county, as shown by the late report of Charles A. Barton, Agent, including lots from 1 to 20 inclusive, and lots 41, 44, 46, 50, 51, 54, 59, 103, 107, 110, 112, 113, 114, and 115 to 120 inclusive, containing 11,903 13-100 acres, at the estimated value of $6,391.24, and lot 111 of 100 acres, as per original survey, at $108.76; making in all 12,003 13-100 acres, at $6,500, to be paid for as follows, viz., one-fourth cash on the delivery of the title bonds (on or before December 10, 1878), one-fourth in one year, one-fourth in two years, and one-fourth in three years from date of said bonds, with 6 per cent. interest, payable annually on the deferred payments. Of the above named lots the Board reserves from this proposition, as already probably sold, or otherwise disposed of, 100 acres out of lot 59 (S. W. part). In case of any sale upon the part of E. Tucker and J. F. Miles, before payment in full has been made, of any or all lands mentioned above, the Board of Trustees shall execute a deed to the purchaser, upon payment to said Board of money or moneys still due under the terms of this purchase on any of said lot or lots. And in order to enable said Board to so convey by deed, the title bonds are to be given for each lot separately at the time the cash payment is made, as stated above. The deeds are to be of same form as heretofore used by said University. Any clerical errors in the number of acres or amounts in C. A. Barton's report, as cited, are to be corrected.

(Signed) ERASMUS TUCKER,
J. F. MILES.

On motion it was

Resolved, That the said proposition be and the same is hereby accepted by the Board, and that Chas. A. Barton, agent for the Board, is directed to execute bonds to said purchasers, and otherwise to execute this contract of sale in accordance with the law and custom in selling the lands belonging to the University.

The Board authorized the purchase of a desk for the Secretary's use.

Hon. M. A. Daugherty appeared before the Board and presented a written account of Wm. H. Leete's, against the University, for legal services as attorney in prosecuting land suits, whereupon it was

Resolved, That the account of William H. Leete, presented by M. A. Daugherty, against the University, for legal services, be referred to Messrs. Godfrey and Johnston, with request to report on the same at the regular meeting in January next.

The report of the Treasurer, Dr. H. S. Babbitt, having been read, was received and ordered to be filed by the Secretary.

On motion, it was

Resolved, That the Board request Prof. McFarland to act as *bursar* in the collection of all fees due from the students during the collegiate year, and pay over all sums so collected to the Secretary.

On motion, a bill of $32 40, presented by Dr. Townshend, for the "Flora of Brazil," a work in part donated by Wm. Sullivant, was ordered to be paid.

On motion, it was

Resolved, That the sum of $100 be appropriatad for the purpose of purchasing supplies for the Chemical Laboratory.

The Board then adjourned to meet January 6, 1879, at 8 o'clock P.M.

COLUMBUS, *January* 7, 1879.

Board met at 10 o'clock A.M.

Present—Messrs. Godfrey, Jamison, Miller, S. H. Ellis, Anderson, and Johnston.

Minutes of the previous meeting were approved.

Mr. Miller moved that Prof. McFarland be allowed $8.33 compensation per term for collecting students' fees and accounting for same to the Secretary. Carried.

Moved by Mr. Jamison, that Stephen Johnston be appointed a committee of one to take the supervision of land in Logan county, the discovery of which had been contracted for by Messrs. Orr and Gaver. Carried.

Capt. C. A. Barton appeared before the Board, submitting a report of lands sold, and bill of expenses incurred since last meeting of the Board. After examination of said bill of $147.10, with the vouchers for the same, the Board ordered the same to be paid, together with $120, two months' salary due to January 1, 1879.

On motion, Board adjourned to January 9, at 8 o'clock P.M., the intermediate time to be employed examining the condition of the University.

COLUMBUS, *January* 9, 1879.

Board met pursuant to adjournment—all the members present.

A communication was read by Mr. Johnston, proposing a basis of settlement with Ralph and William Leete. After consideration of same, a motion for adoption was lost.

On motion of Mr. Miller,

Ordered, That the sum of $50 be appropriated for the purchase of supplies for the Physical and Mechanical Laboratory.

Messrs. Godfrey and Johnston made the following report:

The committee to whom was referred the bill of W. H. Leete for services rendered as per bill stated, amounting to $203, recommend the payment of the sum of $125 on said account, reserving the bill for further explanation.

(Signed) STEPHEN JOHNSTON,
T. J. GODFREY,
Committee.

On motion, the report was adopted, and payment of the amount mentioned ordered.

A bill was presented by Ralph Leete for services rendered in attending to suits in the case of the University against Samuel Cooper and W. J. McKinney *et al.*, in Adams county, amounting to $172.30.

On motion of Alston Ellis,

Ordered, That the bill of Ralph Leete for $172.30 for legal services, and money expended in attending the cases of the Ohio State University *vs.* Samuel Cooper, and the Ohio State University *vs.* W. J. McKinney *et al*, in Adams county, be paid.

On motion,

Resolved, That the Secretary of this Board be instructed to notify Messrs. Ralph and Wm. H. Leete that their services as attorneys are no longer desired by this Board, and that any bills against the University presented by said Leetes for professional services rendered hereafter will not be allowed.

The ayes and nays having been demanded, Messrs. Godfrey, Miller, Anderson, A. Ellis, S. H. Ellis, and Jamison voted aye.

Mr. Johnston voted nay.

So the resolution was declared carried in the affirmative.

On motion of Alston Ellis,

Ordered, That the sum of fifty dollars ($50) be and is hereby appropriated, to be expended under the direction of the Executive Committee, to aid in the purchase of musical instruments for the use of the University Band.

The Board having extended an invitation to the Senate and House Committees on Finance to visit, with them, the University on the following day, adjourned to meet January 10, 1879, at 5 o'clock P.M.

COLUMBUS, *January* 10, 1879.

Board met promptly at 5 o'clock P.M.

Present—Messrs. Godfrey, Jamison, S. H. Ellis, A. Ellis, and Miller.

After a conference with Mr. Alexander, Chairman of the House Committee on Finance, concerning appropriations asked for the University, the Board proceeded to regular business.

On motion of T. E. Miller,

Ordered, That the sum of $200 be and is hereby appropriated for the purchase of supplies for the Chemical Department.

On motion of A. Ellis,

Ordered, That the sum of $500 be and is hereby appropriated for the use of the Farm Committee in the management of the University farm.

In conference, the Board recommended that the Farm Committee remain for several days in looking over the status of the farm, and deciding upon the proper course to be pursued in its management during the year.

The Board also requested a full report of the proceedings of the Executive Committee to be presented at their next meeting.

The Board then adjourned, subject to the call of the President.

COLUMBUS, *April* 15, 1879.

A called meeting of the Board of Trustees of the Ohio State University was held this day. All the members present except Mr. Jamison.

The minutes of the last meeting were approved. The Executive Committee made a full report of their proceedings to date.

The matter of renting the boarding-house was considered, and action thereon referred to the Executive Committee.

On motion, it was

Ordered, That a further appropriation of $35.00 be and is hereby made, for the payment of assistant teachers during the third term of this session.

Ordered, That $35.00 be expended by President Orton in the purchase of books and paper trays.

Ordered,. That $20.00 be appropriated for the purchase of supplies for the Mechanical Department.

On motion of Mr. Johnston, the resignation of President Orton, as President of the University, tendered on the 20th of June, 1878, was taken from the table, and the Secretary was directed to advise President Orton that it was the unanimous request of the Board that he continue as President.

A letter from ex-Attorney-General Little, asking allowance for services as attorney in the prosecution of eight suits during his term as attorney-general, was referred to the Secretary, with instructions to report at the next meeting of the Board.

On motion,

Resolved, That the two cases in Adams County Common Pleas, in which the Agricultural and Mechanical College is plaintiff (one against Wm. J. McKinney et al., and one against Samuel Cooper), are hereby placed in charge of the Attorney-General, with full power to act in behalf of the University in the management of said causes—the employment of local counsel, etc. The Attorney-General is requested to proceed, at once, to have taken the depositions of Jacob S. Rose, of Adams county, and the Executive Committee of this Board is directed to furnish money sufficient to pay the expenses of depositions, and that it is the desire of this Board that said cases be tried at the May term, 1879.

Communications were received from Chas. A. Barton, and the Secretary instructed to request Mr. Barton to do all he could in the collection of old notes due the University, and such other work as was most urgent, and of greatest importance to the financial interests of the University.

On motion, it was

Resolved, That the Secretary be allowed one dollar per day for services performed and required of him outside of the ordinary duties of Secretary, from the time of his appointment.

COLUMBUS, *June* 16, 1879.

At the regular meeting of the Board of Trustees on this day, all the members were present except Messrs. Johnston and S. H. Ellis.

The minutes of the previous meeting were read and signed.

The Secretary reported that the General Assembly had appropriated, on the 22d day of May, 1879, $15,800 for the Ohio State University, to be expended as follows, viz.:

For Farm Improvement and Stock	$3,000
" Mechanical Laboratory and Equipment	9,600
" River Improvement	1,500
" Solar Compass	500
" Chemical Analysis, required by State law	1,200

J. T. Harris, architect, appeared before the Board with plans, specifications, elevations, detailed drawings, and estimates for the Mechanical Laboratory building. Whereupon the Board went into executive session, and, after due consideration, approved the plans, etc., and directed the same to be presented, for approval, to the Governor, Secretary of State, and Auditor, and when so approved, to deposit same with the Auditor, as required by law.

A notice to contractors, inviting proposals, was ordered to be published four weeks in the following papers, viz.: Cincinnati Enquirer, Cleveland Leader, Toledo Blade, and Columbus Dispatch.

The Secretary was instructed to prepare and have printed proper forms of proposals to furnish applicants.

On motion of A. Ellis,

Resolved, That Prof. McFarland be directed to expend for the University the $500 appropriated for the solar compass.

A recess was taken until 9 o'clock on the morning of the 17th instant, when all the members of the Board were present.

On motion, it was

Ordered, That the claim of Attorney Little of $49.27 (being 3 per cent. on $1,642.37 collected for the Agricultural and Mechanical College) be paid.

A report from the Executive Committee was read and approved.

On motion,

Resolved, That the President and Secretary of the Board be instructed to invite the Governor, both branches of the General Assembly, and State officers to attend the annual commencement of the University, to be held on Wednesday afternoon, June 18, 1879.

Mr. Beebe appeared before the Board and asked for allowances for survey, cost, attorney's fees, and taxes on lands purchased of the Agricultural and Mechanical College several years ago. Whereupon, on motion of Mr. Johnston, the whole matter was referred to Capt. C. A. Barton, with instructions to report at the next meeting of the Board.

On recommendation of the Faculty the regular degree of Batchelor of Science was conferred on the following students: J. Scott Humphrey, Amasa B. McMackin, Mary F. Morrison, Henry Snyder, Jr., and Robert S. Towne.

The degree of B.A. was conferred on Warren F. Noble; the degree of Ph.D. (in course) on Prof. H. A. Weber, of Illinois; and the degree of Ph.D. (honorary) on John B. Peaslee, Cincinnati.

Miss. S. Glover was appointed assistant librarian for one year, at a salary of $125.00.

The President of the Faculty and the Department Professor were authorized to appoint assistants in the Department of Physics and of Latin and Greek.

On motion, it was resolved to place the boarding-house at the disposal of President Orton, to be used as a club house for students, under such regulations and arrangements as he may determine.

The report of Capt. Barton, agent, was received and filed, and his account for salary, expenses, and costs ordered to be paid.

On motion of Mr. Johnston, the following preamble and resolutions were adopted:

WHEREAS, It has been made to appear to the Board that some of the Virginia military lands situated in the counties of Pike and Adams, have heretofore been appraised at prices in excess of the market value thereof; therefore,

Resolved, That Capt. Barton be and is hereby authorized to cause a reappraisement of such lands at their real value, and that he be authorized to make sale under the reappraisement so made. Passed.

WHEREAS, Peter Perdue has, by mistake, made a preëmption and improvement on lot No. 156 in Pike county, intending thereby to make preëmption and improvement on lot No. 260; and,

WHEREAS, The Board deem it just and equitable to exchange deeds, so as to correct the mistake; therefore,

Resolved, That Capt. Barton be and is hereby instructed to cause a deed to be made to said Perdue, for No. 260, when the said Perdue shall execute and pay for the record of a clear deed for said lot No. 156 to the Ohio State University.

Passed.

WHEREAS, A deed was made by the A. & M. College to John Lutors, for lot No. —, in Pike county, containing 35 acres, for the sum of $52.71; and,

WHEREAS, It has been made to appear, to the satisfaction of the Board, that the said lot had heretofore been deeded by the A. & M. College to Saul Hendricks, and duly recorded, and that the said sale to Teeters was through a misapprehension of the facts, therefore,

Resolved, That Captain Barton be and is hereby authorized to refund the purchase money to said Teeters, and that he take from said Teeters a proper voucher therefor, and file the same with the Secretary of Board.

On motion of J. H. Anderson,

Resolved, That the degree of Doctor of Laws be and is hereby conferred by this Board on the Hon. Allen G. Thurman and Hon. Morrison G. Waite, in recognition of their learning, ability, and eminent public services.

Resolved, That Captain Barton be and is hereby authorized to take charge of the Virginia Military Lands belonging to the Ohio State University, now discovered, or that may come to his knowledge (not heretofore reported), and that he take such steps, from time to time, as may be necessary to advance and protect the interests of the University in said lands, so as to dispose of said lands as soon as possible.

On motion of A. Ellis,

Ordered, That the secretary of the Board be and he is hereby authorized to draw his warrant on the Treasurer of State for any and all moneys appropriated by the General Assembly for the Ohio State University, whenever the accounts and bills payable under the several items of said appropriation have been approved as follows, to-wit: "For Mechanical Laboratory and equipment," on estimates endorsed by the architect and approved by the chairman of the Executive Committee; for "river improvement," "farm improvement and stock," when approved by the chairman of the Farm Committee; and for "solar compass and chemical analyses required by State law," when approved by chairmen of Executive Committee.

Stephen Johnston was elected Vice-President of the Board, to preside at all meetings in the absence of the President.

A communication from Samuel Kendrick, Esq., concerning the withdrawal on the part of the Board of certain caveats with accompanying papers, was referred to Capt. Barton, to report upon at the next meeting of the Board.

Ordered, That certain cost bills amounting to $110.18, submitted by court officers of Pike county, be referred to Captain Barton to examine, and to pay as he may decide proper.

THURSDAY, *June* 18, 1879.

Board resumed its session at 8 o'clock A. M. All the members present.

Ordered, That the President of the Faculty be requested to have suitable honorary diplomas prepared.

Ordered, That the Executive Committee and President of the University be authorized to expend $100 in advertising in such manner as they may deem proper.

Ordered, That $600 be advanced for supplies for the Chemical Department, to be expended under the direction of the Executive Committee.

Ordered, That $300 be expended by the Executive Committee for desks for Chemical Department.

Ordered, That Executive Committee be authorized to purchase all coal needed for the ensuing year.

Ordered, That the following appropriations be made for the several departments, to wit:

1.	For Department of Latin and Greek		$225 00
2.	"	Physics and Mechanics	200 00
3.	"	Zoology	125 00
4.	For President's department		150 00
5.	For Library		100 00
6.	For Department of Mining		150 00
7.	"	Drawing	50 00
8.	"	Zoology	75 00

Nos. 1, 2, 3, and 4 to be expended under direction of the President for *student helps* for the year ending June 30, 1880, and 5, 6, 7, and 8 for *supplies*, under direction of the Executive Committee.

The following was offered by A. Ellis:

WHEREAS, It is no longer deemed expedient by this Board to continue the present status of the Mining and Metallurgical Department, whereby a professor and an assistant are employed in doing the work that can be well, and fully done, by one; therefore,

Resolved, That the department be placed in charge of an assistant professor for the ensuing year, and that Nat. W. Lord, M.E., be employed as assistant professor, at a salary of $1200 per year.

Resolved, That the Secretary of the Board is hereby instructed to inform Prof. John A Church that his services are no longer required, and this action is based on economic reasons alone.

Resolved, That, as a Board, we recognize the able and scholarly services of Prof. John A. Church in behalf of his department since his connection with the University.

The ayes and nays being called, resulted in unanimous affirmative—Messrs. Miller and Anderson being absent.

Ordered, That the salary of the assistant professor in the Mining and Metallurgical Department of $1,200 be paid one-half from the endowment fund, and the other half from the State appropriation for chemical analyses required by the State law.

It was decided to hold the usual course of Winter Lectures on Agriculture and Mechanics; said course to be held at such time and in such manner as may be jointly agreed upon by the Faculty of the University and the Farm Committee of the Board.

Ordered, That all matters of improvement or repairs to engine, college buildings, and tenement, cloak room, ventilation, gas, cistern, pipes, etc., be referred to the Executive Committee to act upon, and that the same Committee, with the President of the Faculty, be instructed to locate the two literary society rooms, and a room for the new department of History and Philosophy.

Resolved, That whereas Prof. Luigi Lomia has been detailed by the general government to act as Professor of Military Science and Tatics; therefore,

Resolved, That said Prof. Lomia be continued as adjunct Professor of Mathematics and teacher of Elocution, at a salary of $600, for the ensuing year.

Mr. A. Ellis offered the following:

WHEREAS, Much complaint has been heard in reference to placing guards in the University during the late commencement exercises, whereby many persons late in arriving were denied admittance to the University; and,

WHEREAS, The Board deem such action, though well meant and defensible in some particulars, ill-advised and tending to the detriment of the University, by reason of the unfavorable comments it called forth from many friends of the institution, who were desirous of witnessing its closing exercises; therefore,

Resolved, That the Faculty be and are hereby instructed, on future occasions of a similar character, to forbid the employment of the University Cadets as such in guarding the entrances to the building and chapel, and so to arrange that persons visiting the institution during commencement day may have free access to the building under the guidance of ushers appointed by the Faculty.

On motion of Mr. Johnston,

Resolved, That the Board of Trustees of the Ohio State University hereby express their gratification at the organization of the University Band, and their great proficiency in music in so short a time, and that they express the hope that they will continue their organization as one of the important branches of the University, and hereby appropriate the sum of $50 for their use, in addition to the former sum appropriated.

Passed.

A communication from C. E. Thorne, concerning compensation for personal injuries received by Robert Price, was indefinitely postponed.

On motion of Mr. A. Ellis,

Resolved, A Department of History and Philosophy be established in connection with the Ohio State University, and that, for the present, the department be placed under the charge of an Assistant Professor, whose salary shall be $1,500 per annum.

Resolved, That the position of Assistant Professor in said department be tendered to Prof. John T. Short, of Columbus, and that the Secretary be instructed to notify Prof. Short of his appointment.

A call of the ayes and nays on the following being demanded, the resolutions were unanimously passed:

Resolved, That the Secretary be requested to notify the parties upon whom the Board had passed honorary degrees.

Resolved, That the Farm Committee be instructed to spend a sum not exceeding $400 for the High street improvement, and that they be and are hereby instructed also to engage the services of a skilled landscape gardener to lay out and present an acceptable plat for the improvement of the campus and other grounds in front of the University, and reaching to High street, so that all subsequent improvements can be made conformable thereto.

Passed.

On motion,

Resolved, That the President and members of the Faculty other than those upon whose case special action has been taken at the present session of the Board, be and are hereby continued for the period of one year.

Resolved, That Prof. McFarland continue to act as bursar, at a salary of $25.00 per annum.

On motion, the Board adjourned, to meet at 2 o'clock P.M. on July 18, 1879.

STEPHEN JOHNSTON, *President pro tem.*

COLUMBUS, OHIO, *July* 18, 1879.

Board met at 8 o'clock P.M. Present, Messrs. Anderson, S. H. Ellis, Jamison, Alston Ellis, Miller, and Johnston.

Mr. Johnston, Vice President, occupied the chair.

Minutes of the previous meeting were read, and signed by chairman *pro tem.*

On motion,

Ordered, That Prof. McFarland, who was present on invitation of the Board, to confer relative to landscape improvements, be paid his expenses, amounting to $12.00.

Proposals for building the Mechanical Laboratory were duly opened, in the order of names and amounts, as follows, viz:

Thomas F. Jones	$4,888 00
Thos. Harding & Bro	4,726 50
Fred. Weadon	4,748 50
H. W. Newell	4,978 00
E. N. Jones	4,889 00
Wm. Hershiser & Son	4,942 89
Fornoff & Son	4,711 85
Clarke & Fahey	4,550 00

The bid of John D. Clarke and Michael Fahey being the lowest, on motion, their bid of $4,550.00 was accepted, and the President or Vice President and Secretary were instructed to enter into contract with said parties, stipulating the 1st day of October next as the time when said building was to be completed, with a penalty of five dollars per day for each day the work is delayed beyond that time; and should said parties fail to enter into contract, the Vice-President and Secretary should enter into contract with the next lowest bidder.

Several matters, relating to the building of an engine, supplying drinking water to the building, and the building of a brick wall, in place of wooden one now surrounding the boilers were referred to Executive Committee for their action thereon.

Board took a recess until the following morning at 8 o'clock.

SATURDAY, *July* 19th, 1879, 8 o'clock A. M.

The Farm Committee represented that they had entered into contract with Mary F. Lesle, guardian, through her agent J. H. Hess, for the purchase of 12 14-100 acres of land, for which an appropriation, styled "river improvement," had been made at the last session of the General Assembly, agreeing to pay therefor the sum of $607, and fees of the Probate Court, Sheriff and Appraiser's fees. The contract was approved, and the Committee authorized to proceed to secure a proper title of the land.

On motion of Mr. Jamison,

Resolved, That Prof. Robinson be requested to visit the best Eastern manufacturers of such machinery as will be needed to equip the Mechanical Laboratory, and make report to the Executive Committee, and that his reasonable expenses be allowed by said Committee.

On motion,

Ordered, That, in the absence of special action by the Board, the Farm Committee are hereby authorized to direct the expenditure of the appropriation made by the Legislature for river improvement, farm improvement, and stock, and that the Executive Committee have the same power to expend the appropriation made for the Mechanical Laboratory and equipment.

Messrs. John D. Clarke and Michael Fahey appeared before the Board, entering into contract for the building of the Mechanical Laboratory, according to the terms required by the Board, with its representatives, and giving guarantee bond for the sum of $3,000, with approved securities.

Section 2 of the by-laws relating to time of November meeting was suspended, and the Board then adjourned to meet on the 13th day (Thursday), of November next, at 8 A.M.

COLUMBUS, O., *September* 17, 1879.

At a called meeting of the Board of Trustees on this date, Messrs. Godfrey, Johnston, A. Ellis, and Anderson were present.

A general inspection of the buildings, farm, and river improvement was made.

The report of S. W. Robinson's visit through the colleges and manufactories of the East was read, and the Executive Committee authorized to proceed in the equipment of the Mechanical Laboratory according to the suggestions of Prof. Robinson.

Ordered, That a new record for registering the class standings be prepared under direction of Mr. A. Ellis.

Ordered, That shelves for display of a collection of shells, left by Mr. Comly in the University, be constructed in Prof. Tuttle's room.

Ordered, That new window curtains be purchased by the Executive Committee for Prof. Townshend's room.

COLUMBUS, *November* 13, 1879.

Pursuant to the adjournment of meeting held July, 1879, the Board of Trustees held their regular meeting on this day, beginning at 8 o'clock A.M.

Present—Messrs. Johnston, Jamison, Anderson, Alston Ellis, S. H. Ellis, and the President, T. J. Godfrey, in the chair.

The minutes of the meeting of July 18th and September 17th were approved.

A report of the proceedings of the Executive committee since the July meeting of the Board was read and approved.

On motion,

Resolved, That the matter of insurance on the Mechanical Laboratory building and contents be referred to Executive committee with power to act.

Carried.

The annual report of the Board was presented by the Secretary and approved.

The report of the Treasurer was presented and referred to the Finance committee to report upon during their meeting.

On motion of Mr. A. Ellis,

Resolved, That the income of the Endowment Fund (so called), held in trust by the State, and all income from whatever source not otherwise specifically directed, be appropriated for the support and maintenance of the University for the ensuing fiscal year, and for such other purposes incident thereto as the Board of Trustees may from time to time determine; provided, that the use of the income ($20,547.00) of so much of the fund ($342,450.80) as was derived from the proceeds of the land scrip donated by act of Congress July 2, 1862, be limited to the restriction of the second clause of section 5 of said act of Congress; and provided further that the net proceeds of the sale of lands of the Virginia Military District (when the account thereof is closed) be placed to the credit of the irreducible fund of the University in the State treasury, as required by section 6 of an act of the General Assembly of Ohio, passed April 3, 1873, page 173 of the Eighth Annual Report.

Carried.

Resolved, That the treasurer of the University be directed to close the appropriation account as shown upon page 86 of the last annual report as his general statement No. 1, as the detailed statement of receipts and disbursements made annually sufficiently set forth the financial condition of the University as required in his duties and in the "mode of accounting" provided for in section 19 to 24 of the by-laws.

Carried.

The reports of the President and members of the Faculty were approved, with instructions to incorporate such portions in the annual report to be printed, as the President and Secretary might deem proper.

Ordered, That $100 be and is hereby appropriated for the purchase of sulphureted hydrogen gas apparatus.

Ordered, That the sum of $240 paid out of the appropriation for Mechanical Laboratory and Equipment for the purchase of new boiler in engine room be refunded for other use to the said appropriation, and the amount made chargeable to the general interest fund.

Resolved, That the matter of building horse-sheds, target-screens and sheds for the gun-carriages, the putting in of telephone and repairs of bath-room in the dormitory be referred to the Executive committee with power to act.

Carried.

Captain C. A. Barton made a report concerning the sale, and other matters relating to the Virginia Military lands since June, 1879; which was received and ordered to be filed.

Ordered, That the salary $300), and the expense account ($395.03) of C. A. Barton be paid.

The following preamble and resolutions were adopted:

WHEREAS, evidence has been produced to satisfy the Board that the notes of B. M.

Reno, for $21.75; James Porter, for $25, and Joseph Shivey, for $25, have been paid to W. H. Leete, a former agent of the Board; therefore,

Resolved, That said parties are hereby relieved from payment of said notes, and that the same be canceled, but held against said agent until it is shown that he has accounted to the University for the same.

WHEREAS, F. U. Beebe purchased 800 acres of the Virginia Military lands from the University, situated in Scioto county, Ohio, upon which, at the time of his purchase, squatters were known by him to be; and

WHEREAS, said purchaser has, as he claims, incurred expenses in ejecting said squatters, and was successful in his proceedings in ejectment, and now claims the right to reimbursement of costs, taxes, etc., therefore

Resolved, That, in the opinion of this Board, said claim for reimbursement is not a legal claim against the University, and is therefore rejected.

On motion, a recess was taken until 9 o'clock, A.M., November 13, 1879.

Board met at the hour appointed, all the members present except T. E. Miller, who was absent in Europe.

Ordered, That the Secretary purchase for the library the published volumes of the American Jersey Cattle Club Register.

A communication from Mr. Dillon, janitor, concerning his duties as janitor, was received and ordered filed; whereupon the following resolutions were passed, to-wit:

Resolved, That Mr. Dillon be continued as janitor of the Ohio State University on the following terms and conditions:

1. He shall be responsible for the general and special duties now devolving upon him, and shall receive $1000 per annum or $83.33 per month for such services as well as such other services as is specified in his letter of November 12, 1879, to this Board.

2. He shall employ a competent assistant, the same to be approved by the Executive committee, and shall pay him for all service he may perform as such assistant.

3. The right to dismiss said Mr. Dillon, or said assistant, or both, shall be vested in the Executive committee of this Board, who are hereby empowered, in case of the dismissal of said janitor, to make a temporary appointment to fill the position thus made vacant.

4. It is made the duty of the janitor, or the assistant under his direction, to be in or about the University buildings at all times, day and night, and exercise a watchful care over the same.

The reports of the Farm Committee and Farm Superintendent were read and approved.

The Finance Committee, to whom was referred the report of the Treasurer, submitted the following, which was approved:

The accounts and vouchers of the Treasurer have been examined and compared with those shown in the Secretary's record, and found to be correct. An examination shows that the balance reported by the Treasurer is on deposit in the National Exchange Bank,

and subject to his order. The report of the Treasurer is correct in every particular, and its acceptance is hereby recommended. Signed,

ALSTON ELLIS,
STEPHEN JOHNSON,
Committee on Finance.

On motion, it was resolved to proceed to the election of officers by ballot; whereupon Stephen Johnston was elected President of the Board; James B. Jamison, Vice-President; Albert Allen, Secretary; H. S. Babbitt, Treasurer; J. H. Anderson, T. E. Miller, and Alston Ellis, Executive Committee; James B. Jamison, S. H. Ellis, and T. J. Godfrey, Farm Committee; Alston Ellis, T. E. Miller, and T. J. Godfrey, Finance Committee.

The Secretary was directed to have the bond of the Treasurer filed.

A communication from Mr. Thorne, asking increase of salary, was laid on the table.

The salary of Treasurer was fixed at $400, and of the Secretary at $865, including same services, in addition to his ordinary duties, as were required last year.

On motion,

Resolved, That Prof. McFarland be requested to make a complete survey of the lands of the University, including the buildings located thereon, and the subdivisions thereof, into fields, so as to present an accurate birds-eye view of said land, and the subdivisions thereof, properly numbered, and that he procure a suitable stone for lithographing and printing said view.

The matter of opening a road on the north side of the Farm was referred to the Executive Committee, with power to act.

On motion,

Resolved, That the contract between this Board and W. H. Gaber, and W. E. Orr, concerning the discovery of certain Virginia military land, made January 7, 1879, be and is hereby rescinded, they having failed to comply with the terms of said contract.

Carried, and Secretary notified to instruct them.

Moved, that when this Board adjourns, it be to meet again on January 8, 1880, at 9 o'clock A.M.

Board adjourned.

9 **